WESTGROVE APARTMENTS TRAFFIC IMPACT ANALYSIS

County of San Bernardino

April 5, 2019 (Revised September 13, 2019)

gandini

Traffic Engineering ● Transportation Planning ● Parking ● Noise & Vibration
Air Quality ● Global Climate Change ● Health Risk Assessment

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April 5, 2019 (Revised September 13, 2019)

prepared by

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EXECUTIVE SUMMARY

The purpose of this Traffic Impact Analysis is to provide an assessment of traffic operations resulting from development of the proposed Westgrove Apartments project and to identify measures necessary to mitigate potentially significant traffic impacts. This report analyzes traffic impacts for the anticipated project opening in Year 2020, a reciprocal access condition in Year 2022, and for a Year 2040 scenario reflective of the County of San Bernardino General Plan buildout.

Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering.

PROJECT DESCRIPTION

The 9.5-acre project site is located immediately west of The Redlands project site, which is located at the northwest corner of Nevada Street and Lugonia Avenue. The project site is located in the County of San Bernardino within the unincorporated area known as "The Donut Hole". The proposed project involves construction of a gated mid-rise apartment complex with 282 dwelling units. Multiple gated accesses are proposed including a full access main entry for residents and visitors and restricted access residential gates. The project will have reciprocal access agreement for parking and gate access to the easterly adjacent property (The Redlands).

EXISTING OPERATIONS

The study intersections currently operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Existing conditions, except for the following study intersection that currently operates at Level of Service E (Table 1):

- California Street at I-10 Westbound Ramps - #2 (AM peak hour)

The necessary improvements to bring the intersection (California Street at I-10 Westbound Ramps - #2) operations back to an acceptable Level of Service have been identified in the County of San Bernardino Nexus Program.

The following unsignalized study intersection currently satisfies the California Manual on Uniform Traffic Control Devices (2014) peak hour volume warrant (Warrant 3):

- Nevada Street at Lugonia Avenue - #7 (AM/PM peak hour)

PROJECT TRIPS

The proposed project is forecast to generate a total of approximately 1,534 daily trips, including 102 trips during the AM peak hour and 124 trips during the PM peak hour (see Table 2).

FORECAST OPERATIONS

Existing Plus Project: The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Existing Plus Project conditions, except for the following study intersection that is forecast to operate at Level of Service E, without improvements (see Table 4):

- California Street at I-10 Westbound Ramps - #2 (AM peak hour)
- Nevada Street at Lugonia Avenue - #7 (PM peak hour)

The following improvements are recommended to maintain acceptable Levels of Service at the study intersections for Existing Plus Project traffic conditions:

- Nevada Street at Lugonia Avenue - #7
  - Install a traffic signal.
  - Construct one southbound left turn lane.
  - Construct one southbound right turn lane.
  - Restripe northbound shared left-through lane to 1-left turn lane and 1-through-right lane.
  - Restripe eastbound shared left-through lane to 1-left turn lane and 1-through with defacto right lane
  - Restripe westbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane

The necessary improvements to bring the intersection (California Street at I-10 Westbound Ramps - #2) operations back to an acceptable Level of Service have been identified in the County of San Bernardino Nexus Program. Furthermore, since the intersection is currently deficient, the project impact is considered to be indirect/cumulative. Therefore, as mitigation for the project share of the impact, the project shall contribute its share of the cost to construct the necessary improvements through payment of applicable development impact fees.

Opening Year (2020) Without Project: The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Opening Year (2020) Without Project traffic conditions, with improvements (see Table 5).

Opening Year (2020) With Project: The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Opening Year (2020) With Project conditions, with improvements (see Table 5).

Year 2022 Without Project: The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Year 2022 Without Project conditions, with improvements (see Table 6).

Year 2022 With Project With Reciprocal Access: The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Year 2022 With Project With Reciprocal Access conditions, with improvements (see Table 6).

General Plan Buildout (Year 2040) Without Project: The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) Without Project conditions, with improvements (see Table 7).

General Plan Buildout (Year 2040) With Project: The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) With Project conditions, with improvements (see Table 7).

General Plan Buildout (Year 2040) With Project With Reciprocal Access: Therefore, the study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) With Project With Reciprocal Access conditions, with improvements (see Table 7).

MITIGATION MEASURES

The proposed project shall contribute its fair share, through the adopted development impact fee program, to the following measures to mitigate the impact of the project at the study intersections:

- California Street at Lugonia Avenue - #1
  - Install eastbound right-turn overlap signal phasing.
  - Restripe the westbound approach to consist of one left turn lane, one shared through/left turn lane, and one right turn lane.

- California Street at I-10 Westbound Ramps - #2
  - Construct a second northbound left turn lane.
  - Construct a third northbound through lane.
  - Reconfigure existing southbound right turn lane to a free right turn lane.
  - Reconfigure the westbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing two additional lanes.

- Nevada Street at Lugonia Avenue - #7
  - Install a traffic signal.
  - Construct one southbound left turn lane.
  - Construct one southbound right turn lane.
  - Restripe northbound shared left-through lane to 1-left turn lane and 1-through-right lane.
  - Restripe eastbound shared left-through lane to 1-left turn 1-through lane and 1-through-right lane
  - Restripe westbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane

Since improvements at the California Street at I-10 interchange improvements are identified in the Development Mitigation Nexus Study and would be constructed simultaneously, Level of Service operations with improvements at the intersection of California Street at I-10 Eastbound Ramps (Study Intersection #3) have also been identified, even though these improvements are not required to mitigate the proposed project impact. The following improvements are assumed to be constructed in conjunction with California Street at I-10 interchange improvements:

- California Street at I-10 Eastbound Ramps - #3
  - Construct a second southbound left turn lane.
  - Construct a third southbound through lane.
  - Reconfigure the eastbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing three additional lanes.

Figure 55 graphically illustrates the identified improvements. Improvements at the project driveways are project design features which shall be constructed by the project. Site-adjacent improvements shall be constructed in conjunction with the project.

GENERAL RECOMMENDATIONS

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project.

Figure 56 summarizes the circulation recommendations for the proposed project.

All roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project should be constructed in accordance with applicable engineering standards and to the satisfaction of the County of San Bernardino Public Works Department.

Site-adjacent roadways should be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the County of San Bernardino Public Works Department.

In conjunction with standard County of San Bernardino development review procedures, on-site traffic signing and striping plans should be prepared in accordance with applicable State and Federal standards.

Adequate off-street parking should be provided to the satisfaction of County of San Bernardino Land Use Services based on supporting parking and density analysis prepared for the project.

The final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable County of San Bernardino/California Department of Transportation sight distance standards.

As is the case for any roadway design, the County of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

1. INTRODUCTION

This section describes the purpose of this traffic impact analysis, project location, proposed development, and study area. Figure 1 shows the project location map and Figure 2 illustrates the project site plan.

PURPOSE AND OBJECTIVES

The purpose of this Traffic Impact Analysis is to provide an assessment of traffic operations resulting from development of the proposed Westgrove Apartments project and to identify measures necessary to mitigate potentially significant traffic impacts. This report analyzes traffic impacts for the anticipated project opening in Year 2020, a reciprocal access condition in Year 2022, and for a Year 2040 scenario reflective of the County of San Bernardino General Plan buildout.

Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering.

PROJECT DESCRIPTION

The 9.5-acre project site is located immediately west of The Redlands project site, which is located at the northwest corner of Nevada Street and Lugonia Avenue. The project site is located in the County of San Bernardino within the unincorporated area known as "The Donut Hole". The proposed project involves construction of a gated mid-rise apartment complex with 282 dwelling units. Multiple gated accesses are proposed including a full access main entry for residents and visitors and restricted access residential gates. The project will have reciprocal access agreement for parking and gate access to the easterly adjacent property (The Redlands).

PROJECT PHASING

For the purposes of this analysis, the proposed project is anticipated to be built in one continuous phase (Opening Year 2020). Since the reciprocal access with the easterly adjacent development (The Redlands) has a different construction timeline, analysis for the proposed reciprocal access condition is also provided for Year 2022 conditions.

PROJECT ACCESS

Three (3) gated access driveways are proposed. The main entrance to the apartments on Lugonia Avenue is proposed as a full access gated driveway. The gated access for residents is located beyond the leasing and visitor parking area. The secondary access to the apartments on Lugonia Avenue is proposed as a restricted exit-only gated driveway. The third project site access point with access at Nevada Street is located on the easterly adjacent property east of the parking structure. This third driveway is proposed as a full access gated driveway.

For Opening Year (2020), the Lugonia Avenue east project driveway will provide full ingress and egress to the site, and the Lugonia Avenue west project driveway will provide restricted egress only access.

For Year 2022, the Lugonia Avenue east project driveway will provide full ingress and egress to the site for both the proposed project and the easterly adjacent future development (The Redlands) under a reciprocal access agreement. The Lugonia Avenue west project driveway will provide restricted egress only access for the proposed project. The Nevada Street north parking structure driveway will provide full ingress and egress for both the proposed project and the adjacent development (The Redlands) under a reciprocal access agreement.

STUDY AREA

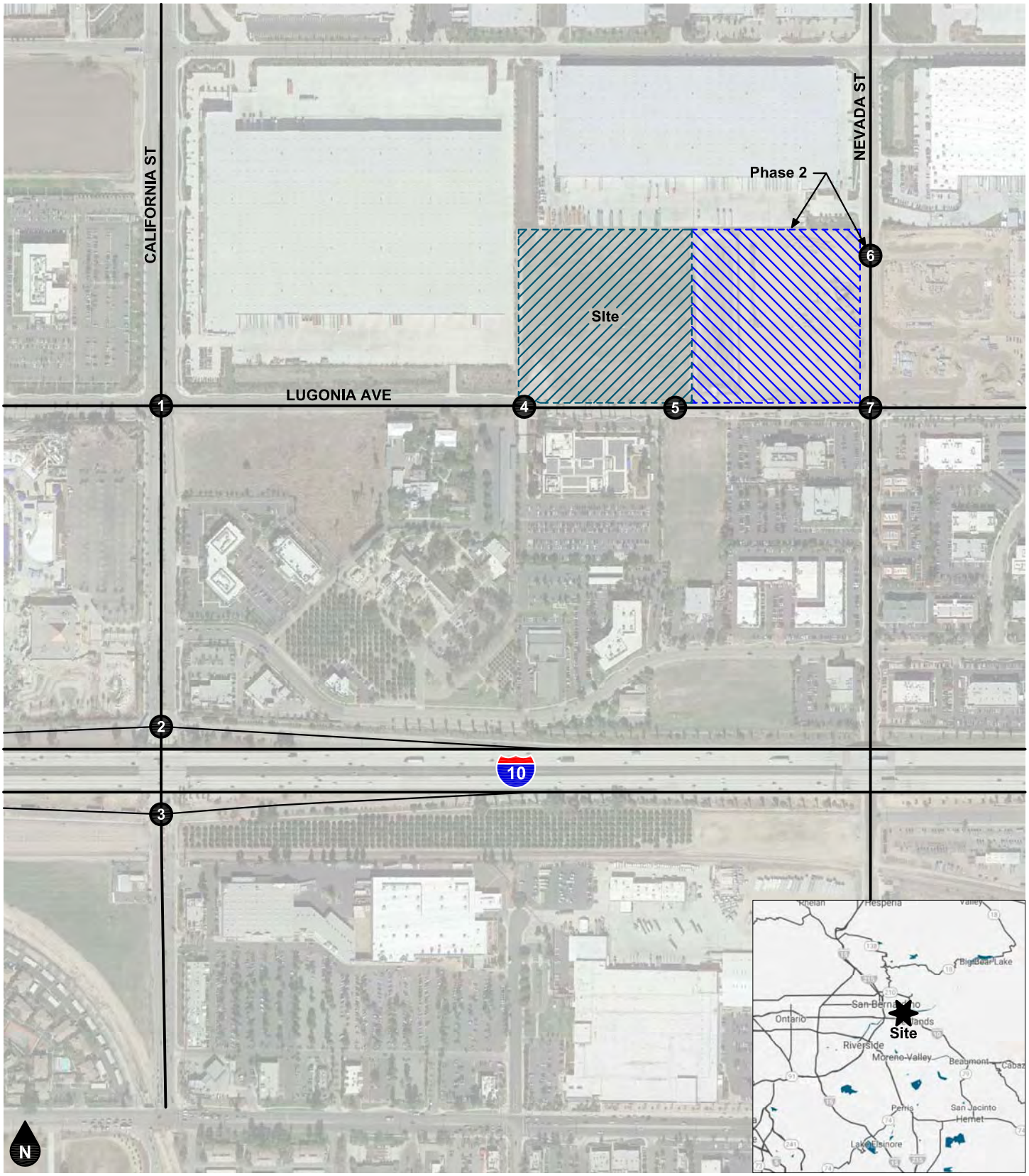
Based on the study intersections identified in the scoping agreement (Appendix B), the study area consists of the following study intersections within the County of San Bernardino, City of Redlands, and California Department of Transportation (Caltrans) jurisdiction:

Study Intersections	Jurisdiction
1. California Street (NS) at Lugonia Avenue (EW)	City of Redlands
2. California Street (NS) at Interstate 10 (I-10) Westbound Ramps (EW)	Caltrans
3. California Street (NS) at I-10 Eastbound Ramps (EW)	Caltrans
4. Project West Access (NS) at Lugonia Avenue (EW)	County
5. Project East Access (NS) at Lugonia Avenue (EW)	County
6. Nevada Street (NS) at Project North Access (EW)	County
7. Nevada Street (NS) at Lugonia Avenue (EW)	County/City of Redlands

ANALYSIS SCENARIOS

The following scenarios are analyzed during typical weekday AM and PM peak hour conditions:

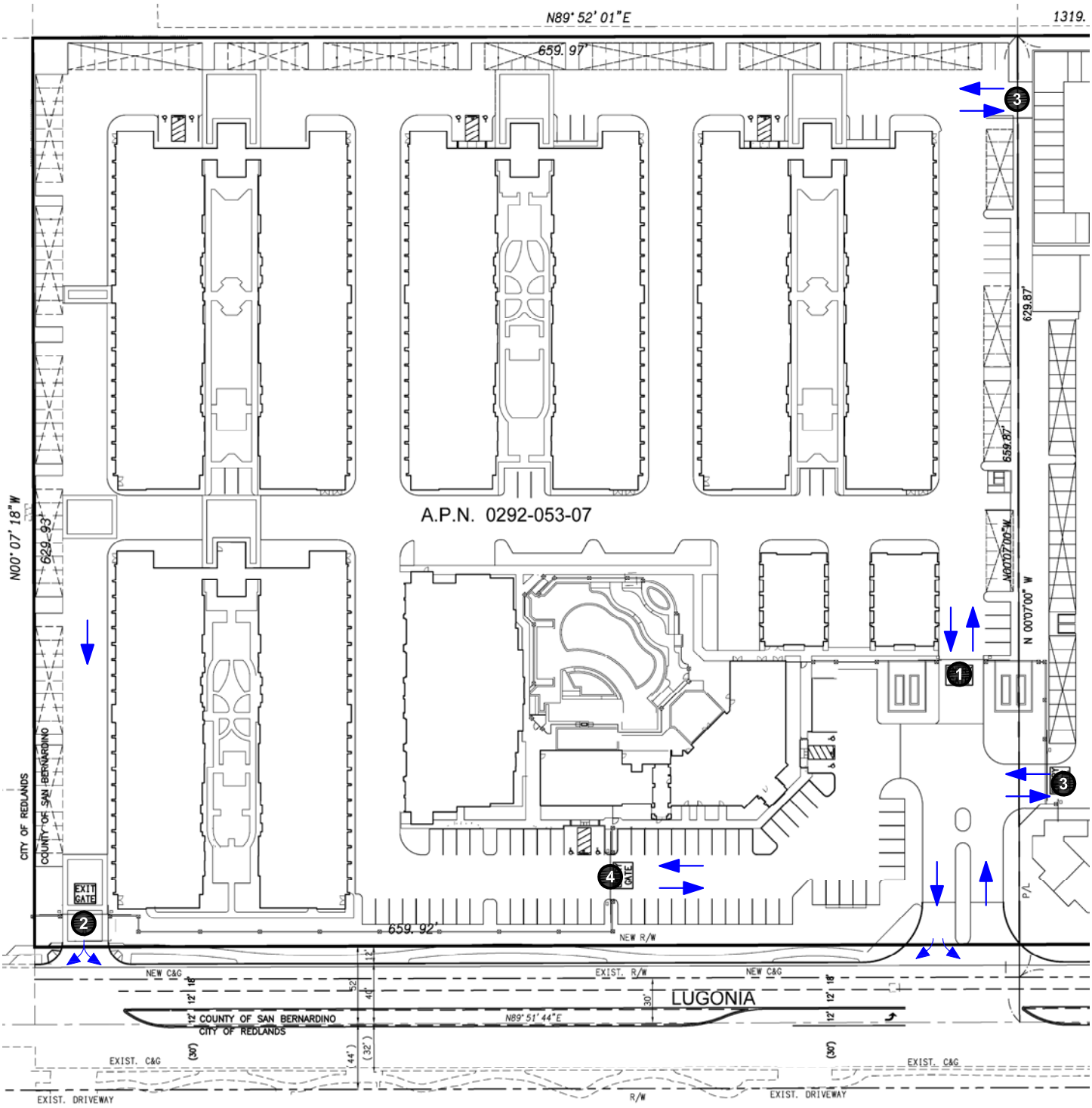
- Existing
- Existing Plus Project
- Opening Year (2020) Without Project
- Opening Year (2020) With Project
- Year 2022 Without Project
- Year 2022 With Project With Reciprocal Access
- General Plan Buildout (Year 2040) Without Project
- General Plan Buildout (Year 2040) With Project
- General Plan Buildout (Year 2040) With Project With Reciprocal Access



Legend

- # Study Intersection
- Site
- Adjacent Project

Figure 1
Project Location Map



Legend

1. Main Full Access Gate (Resident/Guest) (1-Left and 1-Right)
2. Secondary Exit Only (1-Shared Left-Right)
3. Reciprocal Access Gate (Phase 2)
4. Residential Gate

Figure 2
Site Plan

2. METHODOLOGY

This section discusses the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies.

INTERSECTION DELAY METHODOLOGY

The technique used to assess the performance of intersections in the County of San Bernardino, City of Redlands, and State highways, is known as the intersection delay methodology based on the procedures contained in the Highway Capacity Manual. The methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: Transportation Research Board, Highway Capacity Manual (6th Edition).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). Intersection delay analysis was performed using the Vistro (Version 6.00-00) software. The intersection Level of Service analysis has been performed in accordance with Appendix B of the San Bernardino County Congestion Management Program, including minimum phase times, lost time, and saturation flow rates.

PERFORMANCE STANDARDS

County of San Bernardino. The definition of an intersection deficiency has been obtained from the County of San Bernardino General Plan. The General Plan states that peak hour intersection operations of Level of Service D or better are generally acceptable. Therefore, any intersection operating at Level of Service E or F is considered deficient.

City of Redlands. The definition of an intersection deficiency has also been obtained from the City of Redlands General Plan. The General Plan states that peak hour intersection operations of Level of Service C or better are generally acceptable. Therefore, any intersection operating at Level of Service D to F is considered deficient.

In accordance to the City of Redlands Measure U Section 1A.60 Principle Six (a), all new development projects shall assure by appropriate mitigation measures that, at a minimum, traffic Levels of Service are maintained at a minimum of Level of Service C throughout the City, except where the current Level of Service is lower than Level of Service C, or as provided in Section 5.20 of the Redlands General Plan where a more intense Level of Service is specifically permitted. In any location where the Level of Service is below C at the time an

application for a development project is submitted, mitigation measures shall be imposed on that development project to assure, at a minimum, that the Level of Service is maintained at Levels of Service that are no worse than those existing at the time an application for development is filed, except as provided in Section 5.20b.

Measure U Section 5.0 Circulation Element sections 5.20a, 5.20b, 5.20c are listed as "Guiding Policies: Standards for Traffic Service:

5.20a Maintain Level of Service C or better as the standard at all intersections presently at Level of Service C or better.

5.20b Within the area identified in the General Plan (Figure 5.3), including that unincorporated County area identified as the "donut hole," maintain Level of Service C or better; however, accept a reduced Level of Service D on a case by case basis upon approval by a four-fifths (4/5ths) vote of the total authorized membership of the City Council.

5.20c Where the current Level of Service at a location within the City of Redlands is below the Level of Service C standard, no development project shall be approved that cannot be mitigated so that it does not reduce the existing Level of Service at that location except as provided in Section 5.20b.

California Department of Transportation. As stated in the Guide for the Preparation of Traffic Impact Studies (State of California, 2002), "California Department of Transportation endeavors to maintain a target LOS [Level of Service] at the transition between LOS "C" and LOS "D" on State highway facilities". The California Department of Transportation acknowledges this may not always be feasible and recommends consultation with the California Department of Transportation to determine the appropriate target Level of Service. For consistency with local requirements, this analysis defines Level of Service D as the minimum acceptable Level of Service for State Highway facilities.

THRESHOLDS OF SIGNIFICANCE

County of San Bernardino. For study intersections within the County of San Bernardino, a project traffic impact is considered significant if the addition of project-generated trips causes or worsens unacceptable Level of Service (E or F) at a study intersection.

City of Redlands. For study intersections within the City of Redlands, a project traffic impact is considered significant if the addition of project-generated trips is forecast to cause or worsen[1] Level of Service D, E, or F at a study intersection.

California Department of Transportation. Based on the California Department of Transportation established performance standards, a potentially significant traffic impact is defined to occur if the addition of project generated trips is forecast to cause the performance of a State Highway study intersection to change from acceptable Level of Service (D or better) to unacceptable Level of Service (E or F).

If a project is forecast to cause a significant traffic impact, feasible mitigation measures that will reduce the impact to a less than significant level are identified. Mitigation measures can be in many forms, including the addition of lanes, traffic control modification, or demand management measures. If no feasible mitigation measures can be identified for a significantly impacted facility, the impact will remain significant and unavoidable and a statement of overriding considerations is required.

[1] Source: The City of Redlands staff defines an increase in delay makes the Level of Service worse as Level of Service is a measure by average delay.

3. EXISTING CONDITIONS

EXISTING ROADWAY SYSTEM

Figure 3 identifies the lane geometry and intersection traffic controls for Existing conditions based on a field survey of the study area. Regional access to the project area is provided by the I-10 Freeway south of the project site. The key north-south roadways providing local circulation is California Street and Nevada Street. The key east-west roadway providing local circulation is Lugonia Avenue.

I-10 Freeway is a ten-lane divided freeway classified as a State Highway on the County of San Bernardino General Plan Circulation Element. I-10 Freeway access is provided at via grade separated interchanges at California Street and Alabama Street. It currently carries approximately 191,000 to 194,000 vehicles per day in the project vicinity.

California Street is a four-lane divided to six-lane divided roadway south of Lugonia Avenue. California Street classified as a four-lane divided Major Arterial Highway (80-foot roadway cross-section) in the County of San Bernardino General Plan. California Street is classified as a four- to six-lane divided Major Arterial (various roadway cross-section) in the City of Redlands General Plan. On-street parking is generally prohibited in the project area. No bicycle facilities are provided in the study area. Sidewalks are generally provided on both sides of the roadway.

Nevada Street is a two-lane undivided roadway north and south of Lugonia Avenue and four-lane undivided roadway north of the project site. Nevada Street classified as a four-lane undivided Secondary Highway (64-foot roadway cross-section) in the County of San Bernardino General Plan north of Lugonia Avenue. Nevada Street classified as a two-lane divided Minor Arterial (various roadway cross-section) in the City of Redlands General Plan south of Lugonia Avenue. On-street parking is prohibited north of Lugonia Avenue. On-street parking is permitted on both sides of the road south of Lugonia Avenue. On-street bicycle lanes not provided. Sidewalks are provided south of Lugonia Avenue.

Lugonia Avenue is a two-lane undivided to three-lane undivided roadway west of California Street and a four-lane divided roadway east of California Street. Lugonia Avenue classified as a four-lane divided Major Highway (80-foot roadway cross-section) in the County of San Bernardino General Plan. Lugonia Avenue classified as a two-lane divided to four-lane undivided Minor Arterial (various roadway cross-section) in the City of Redlands General Plan. On-street parking is generally permitted on south side of the road. On-street bicycle lanes not provided. Sidewalks are provided on south side of the road.

PEDESTRIAN FACILITIES

Existing pedestrian facilities in the project vicinity are shown on Figure 4. As shown on Figure 4, pedestrian sidewalks are currently not provided along the roadways adjacent to the project site.

TRANSIT FACILITIES

Figure 5 shows the existing transit routes available in the project vicinity. As shown in Figure 5, the study area is currently served by Omnitrans Route 15 along Alabama Street, as well as Beaumont Transit Service 125 along California Street.

GENERAL PLAN CONTEXT

Figure 6 shows the County of San Bernardino General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The County of San Bernardino standard roadway cross-sections are illustrated on Figure 7.

Figure 8 shows the City of Redlands General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The City of Redlands standard roadway cross-sections are illustrated on Figure 9.

BICYCLE ROUTES

There are currently bicycle lanes not provided on California Street, Nevada Street and Lugonia Avenue. On-street bicycle lanes are proposed in the City of Redlands General Plan for California Street, Nevada Street and Lugonia Avenue. The City of Redlands General Plan Bike Routes is depicted on Figure 10.

TRUCK ROUTES

Figure 11 shows the designated truck routes as identified in the City of Redlands General Plan.

EXISTING ROADWAY VOLUMES

Figure 12 shows the Existing average daily traffic volumes. The Existing average daily traffic volumes have been obtained from the 2017 Traffic Volumes on California State Highways by the California Department of Transportation and factored from peak hour intersection turning movement volumes using the following formula for each intersection leg:

Evening Peak Hour (Approach Volume + Exit Volume) x 11.5 = Leg Volume.

Existing peak hour intersection turning movement volumes are based upon AM peak period and PM peak period intersection turning movement counts obtained in August 2018 as well as January 2019 during typical weekday conditions. The AM peak period was counted between 7:00 AM and 9:00 AM and the PM peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15 minute periods with the highest total volume when all movements are added together. Thus, the weekday PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15 minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix C. In accordance with San Bernardino County Congestion Management Program (CMP) recommendations, existing volume counts were obtained with truck classification and converted to Passenger Car Equivalent (PCE) trips to account for the effect of slower-moving trucks.

Figure 13 and Figure 14 show the Existing AM and PM peak hour intersection turning movement volumes, respectively. Existing daily and intersection volumes shown on Figure 12 to Figure 14, and all subsequent figures in this report, are representative of PCE trips.

EXISTING INTERSECTION LEVEL OF SERVICE

The intersection Levels of Service for Existing conditions have been calculated and are shown Appendix F.

The study intersections currently operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Existing conditions, except for the following study intersection that currently operates at Level of Service E (Table 1):

- California Street at I-10 Westbound Ramps - #2 (AM peak hour)

The necessary improvements to bring the intersection (California Street at I-10 Westbound Ramps - #2) operations back to an acceptable Level of Service have been identified in the County of San Bernardino Nexus Program.

EXISTING TRAFFIC SIGNAL WARRANT ANALYSIS

The potential need for installation of a traffic signal at unsignalized study area intersections was evaluated based on the California Manual on Uniform Traffic Control Devices ("California MUTCD", November 2014), peak hour volume warrant (Warrant 3). Part 4C – Traffic Control Signal Needs Studies of the California MUTCD contains a series of warrants, or criteria, which serve to determine whether installation of a traffic signal is justified at a particular location. The California MUTCD states that a traffic control signal should not be installed unless one or more warrants are satisfied. Application of the traffic signal warrants should be based on engineering judgement and satisfaction of one or more traffic signal warrants shall not in itself require the installation of a traffic signal.

The following unsignalized study intersection currently satisfies the California Manual on Uniform Traffic Control Devices (2014) peak hour volume warrant (Warrant 3):

- Nevada Street at Lugonia Avenue - #7 (AM/PM peak hour)

Traffic signal warrant worksheets are provided in Appendix G.

Table 1
Existing Intersection Levels of Service

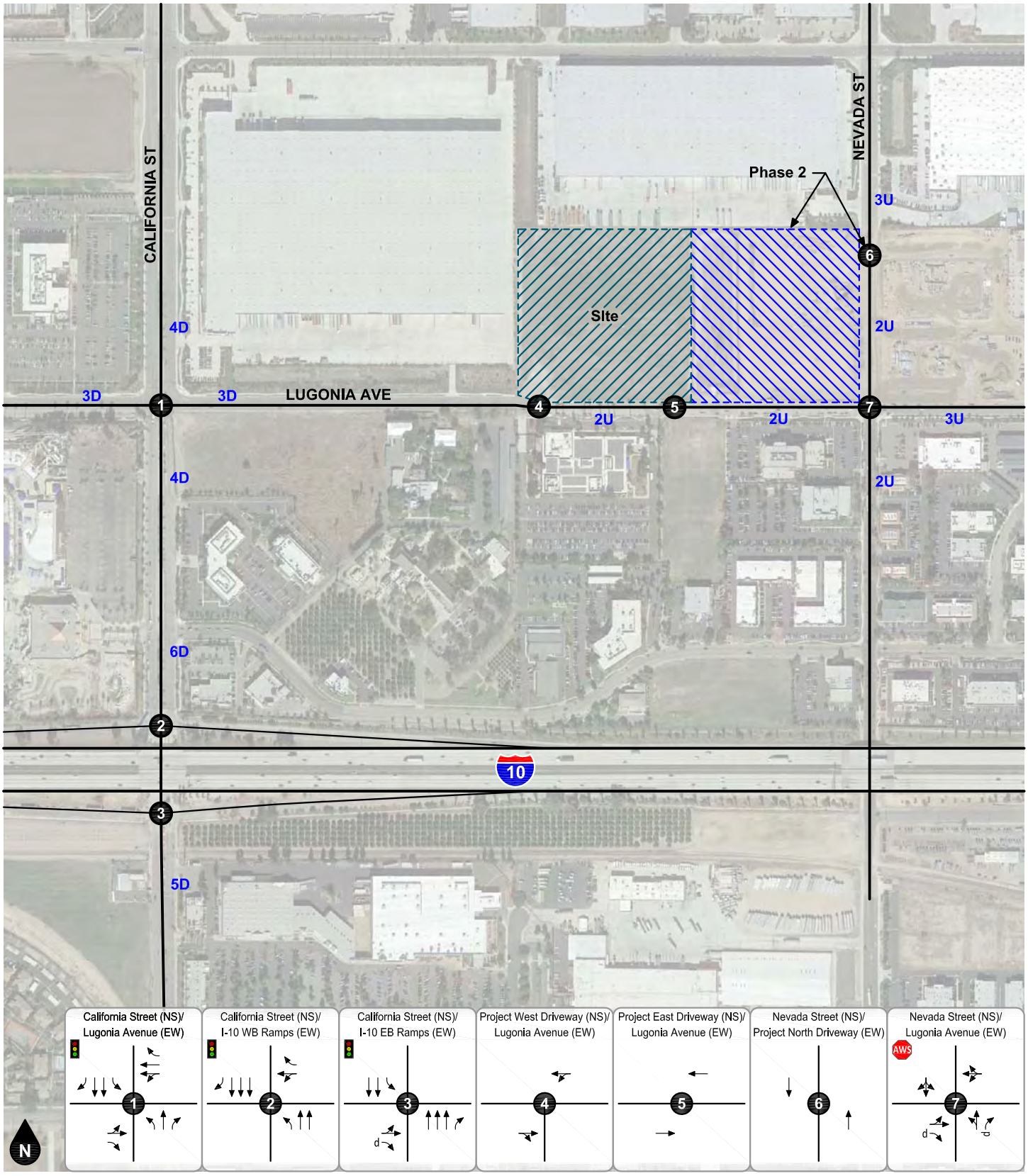
ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay	LOS
1.	California St at Lugonia Ave	TS	21.0	C	23.6	C
2.	California St at I-10 WB Ramps	TS	64.5	E	35.0	C
3.	California St at I-10 EB Ramps	TS	23.5	C	26.4	C
4.	Project West Access at Lugonia Ave	CSS	11.4	B	13.2	B
7.	Nevada St at Lugonia Ave	AWS	11.4	B	20.9	C

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

(2) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

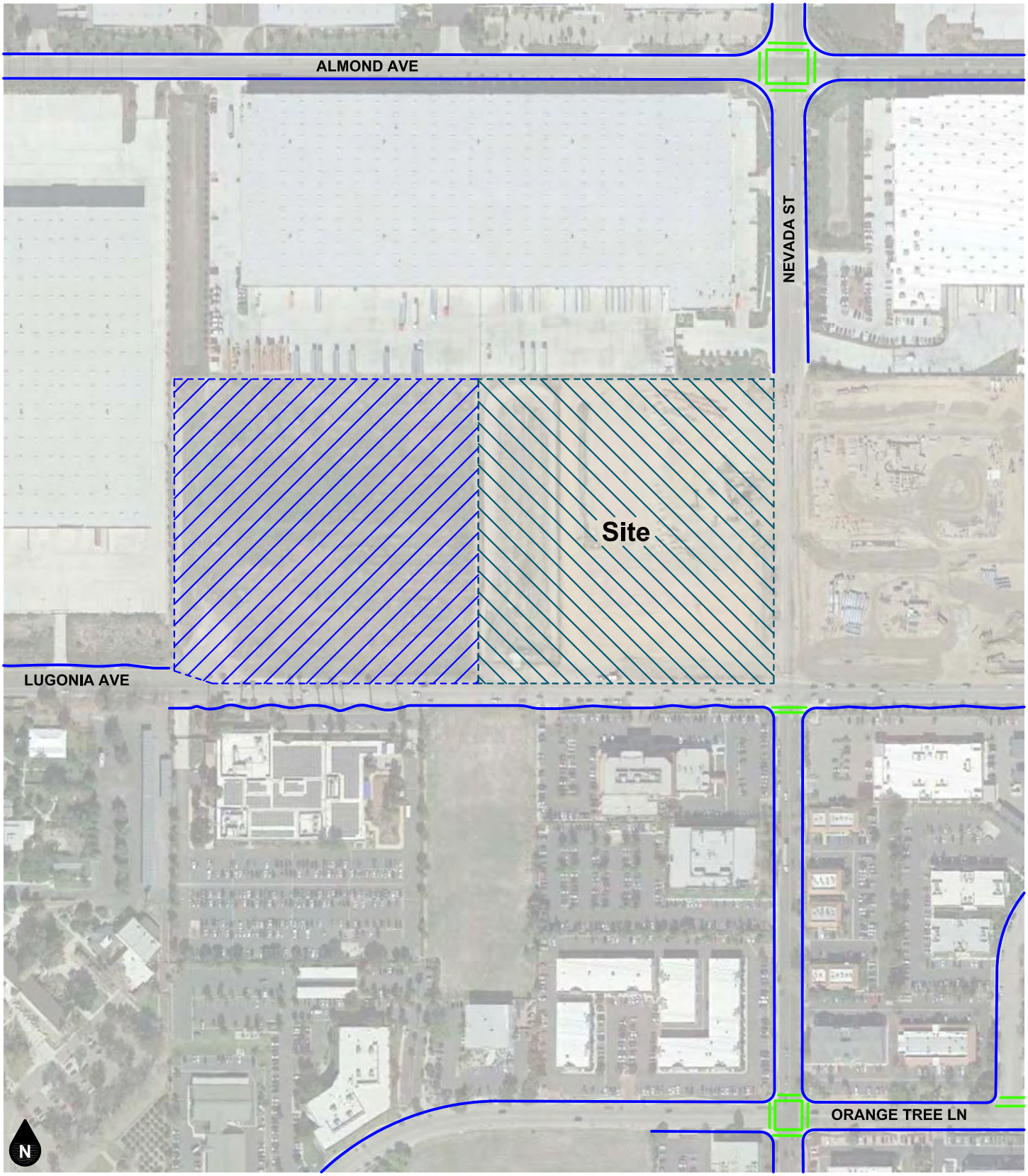
(3) LOS = Level of Service



Legend

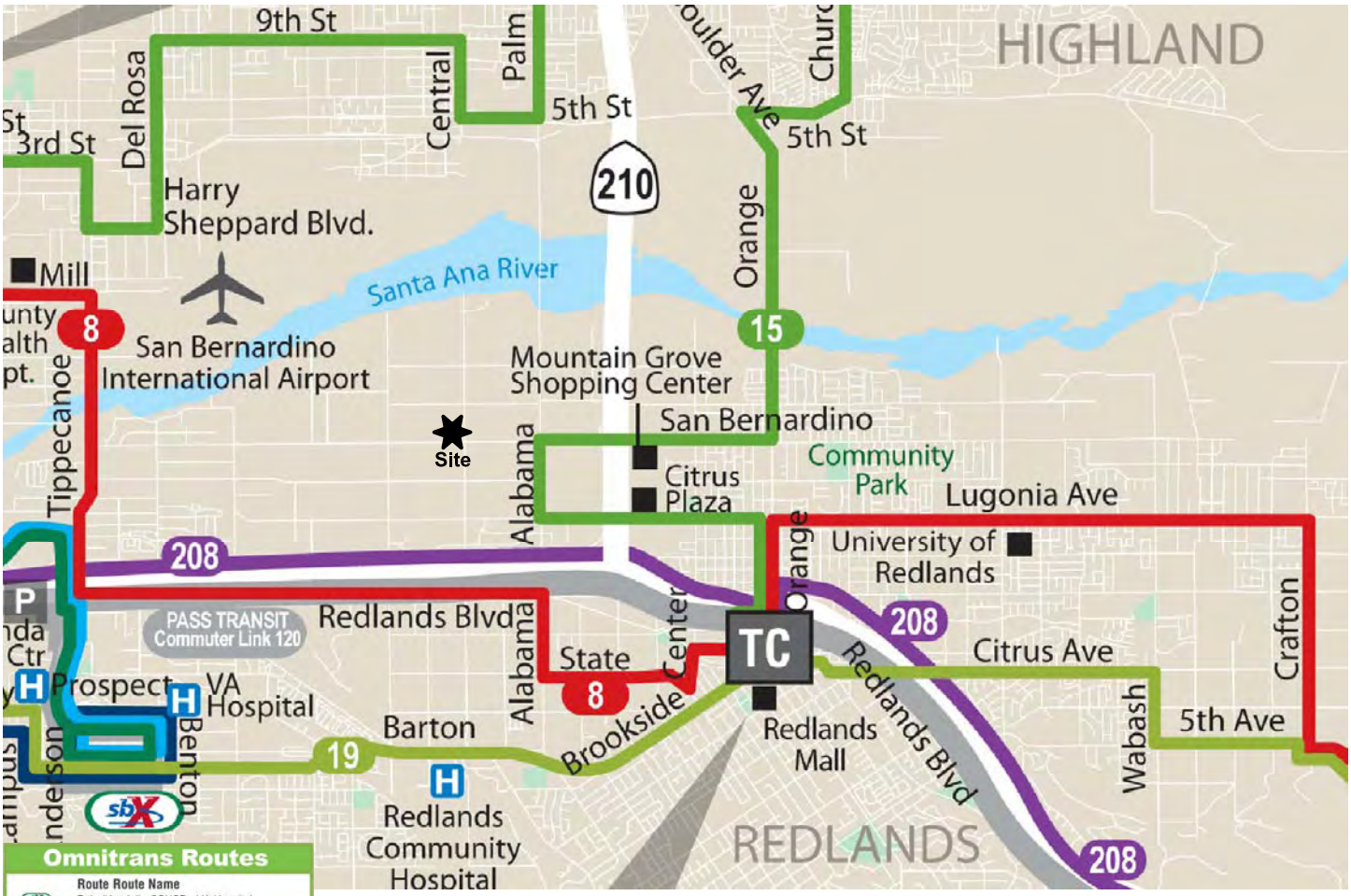
- Traffic Signal
- AWS All Way Stop
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Existing Lane
- d De Facto Right Turn Lane

Figure 3
Existing Lane Geometry and Intersection Traffic Controls



Legend
Sidewalk
Cross Walk

Figure 4
Existing Pedestrian Facilities



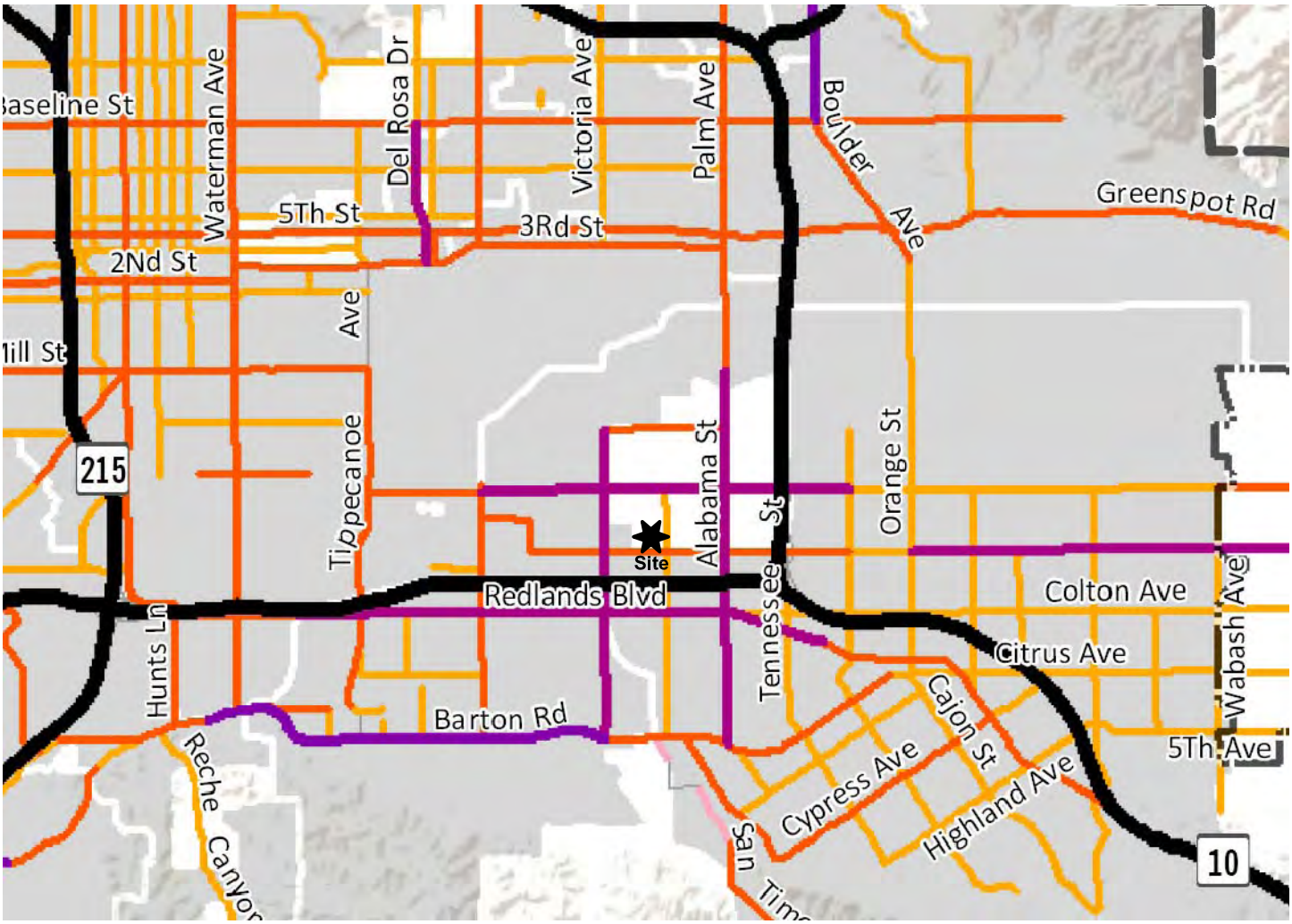
Omnitrans Routes

Route	Route Name
sbX	Palm/Kendall - CSUSB - VA Hospital
1	ARMC – San Bernardino Del Rosa
2	Cal St – E St – Loma Linda
3/4	Baseline – Highland – San Bdno
5	South Waterman – Del Rosa – Cal State
7	N San Bdno – Sierra Way – San Bdno
8	San Bdno – Mentone – Crafton Hills College
10	Fontana – Baseline – San Bernardino
11	San Bernardino – Muscoy – Cal State
14	Fontana – Foothill – San Bernardino
15	Fontana – San Bernardino/Highland – Redlands
19	Fontana – Colton – Redlands - Yucaipa
20	Fontana – Metrolink – Via Hemlock – Kaiser
22	North Rialto – Riverside Ave – ARMC
29	Bloomington – Valley Blvd – Kaiser
61	Fontana – Ontario Mills – ONT Airport - Pomona
66	Fontana – Foothill Blvd – Montclair
67	Chaffey College – Baseline – Fontana
80	ONT Airport - Vineyard Ave. – Chaffey College
81	Chino - Haven – Chaffey College
82	Rancho Cucamonga – Fontana – Sierra Lakes
83	Chino – Euclid Ave. – Upland
84	Chino - Mountain Ave. - Upland
85	Chino - Montclair - Chaffey College
86	S. Ontario - Campus Ave. - San Antonio Hospital
88	Chino Hills - Ramona Ave. - Montclair
208	Yucaipa - Redlands - San Bernardino
215	Riverside - San Bernardino
290	San Bernardino - ARMC - Ontario Mills - Montclair
308/309/310	OmniGo Yucaipa
325	OmniGo Grand Terrace
365	OmniGo Chino/Chino Hills

Routes and schedules are subject to change without notice.

Figure 5
County of San Bernardino Transit Routes

Source: Omnitrans



N

Legend

Roadway Designation

- Freeway
- Major Divided Highway
- Major Arterial Highway
- Major Highway
- Secondary Highway
- Controlled/Limited Access Collector
- Mountain Major Highway
- Mountain Secondary Highway
- State Highway (Special Standards or Conditions)

Source: County of San Bernardino

Figure 6
County of San Bernardino General Plan Circulation Element

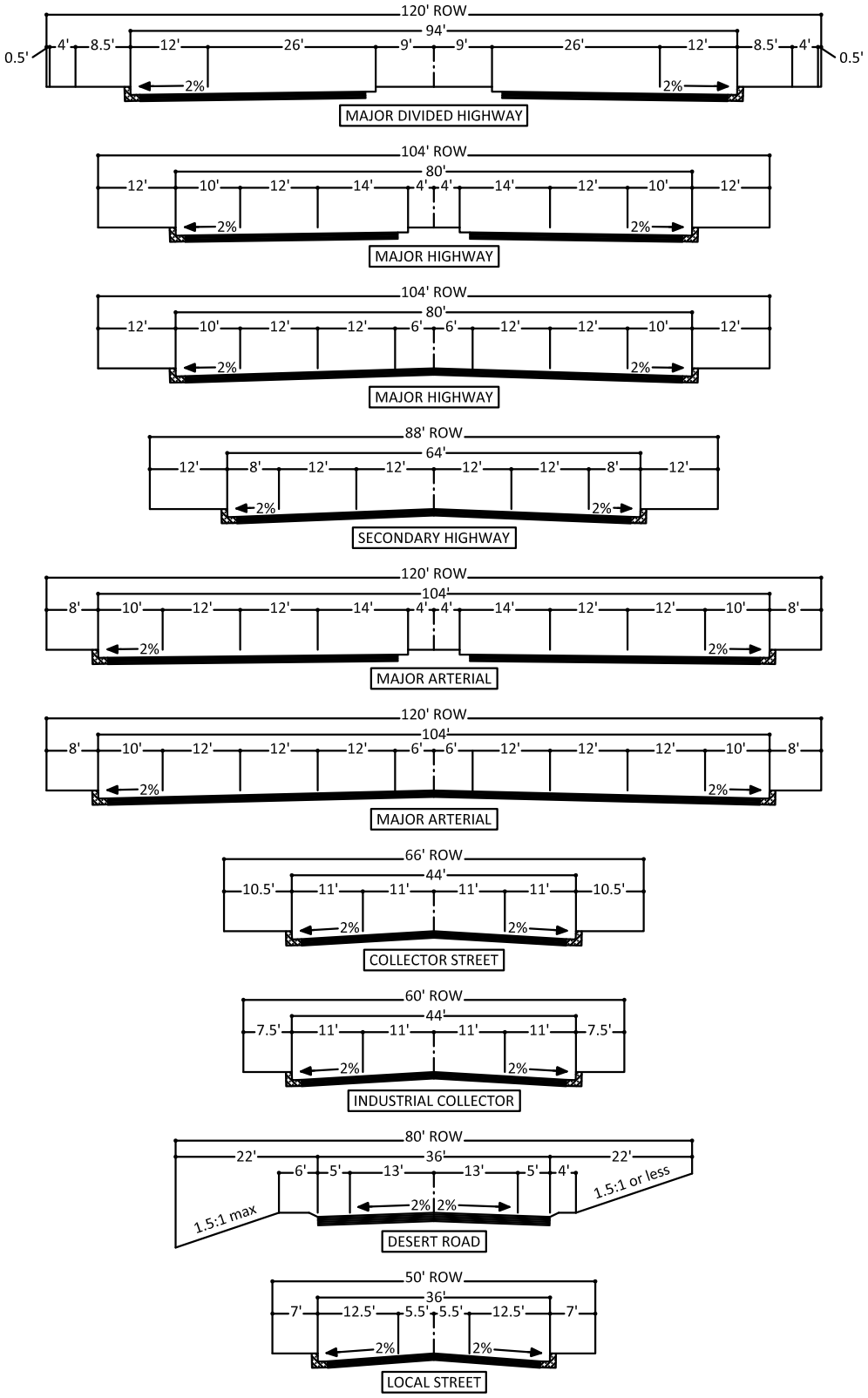


Figure 7
County of San Bernardino General Plan Roadway Cross-Sections

Source: County of San Bernardino

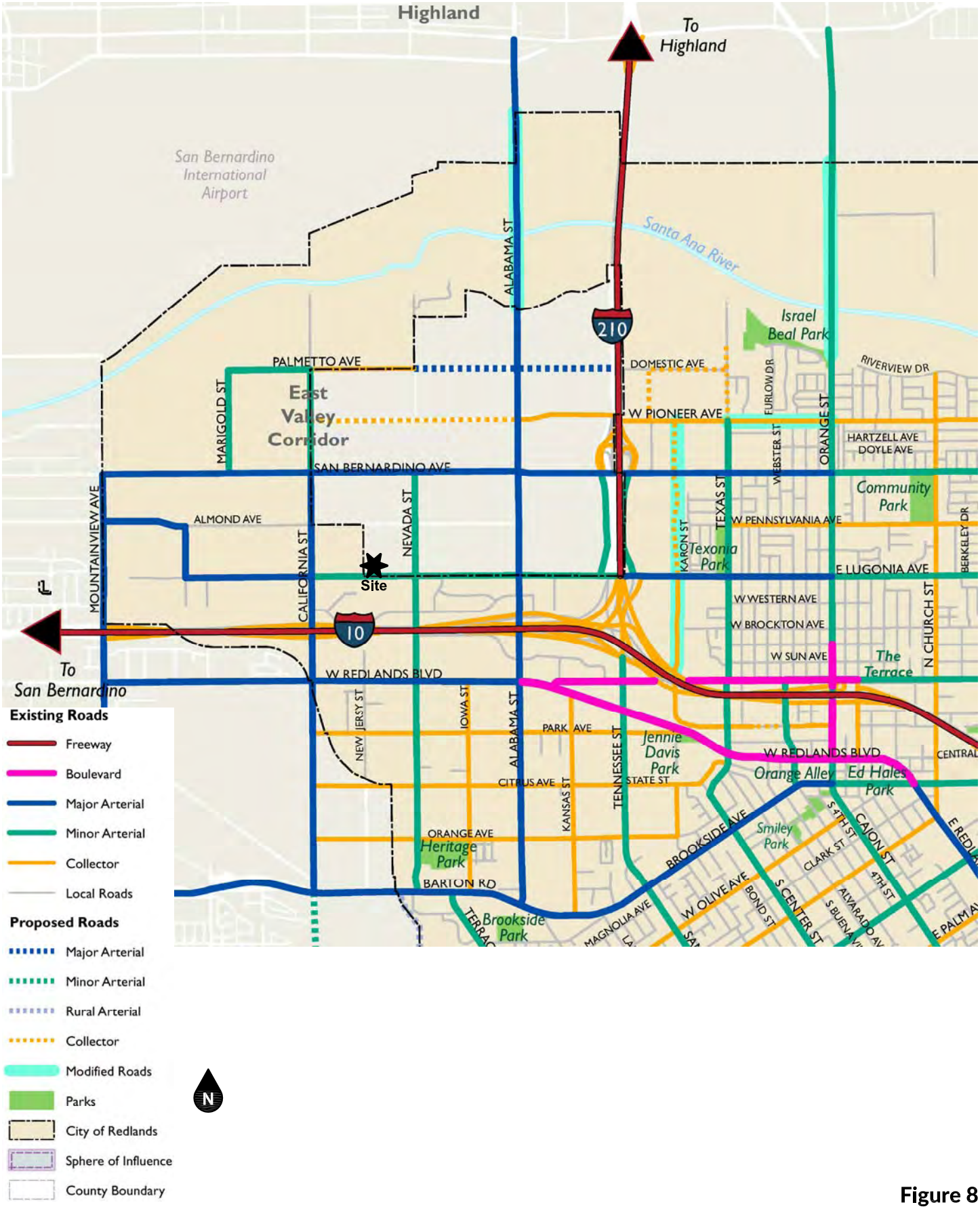
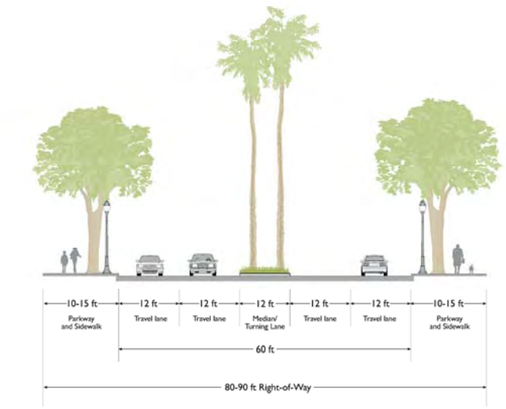


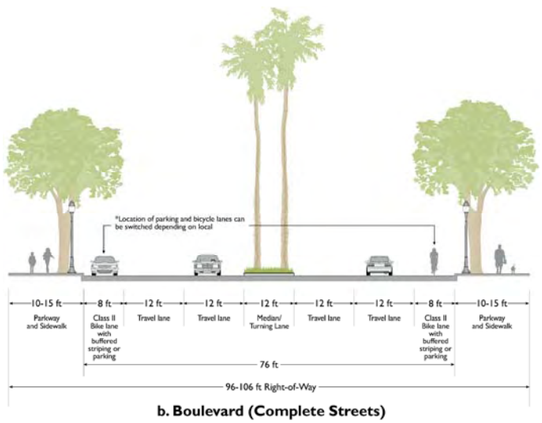
Figure 8
City of Redlands General Plan Circulation Element

Source: City of Redlands

BOULEVARDS

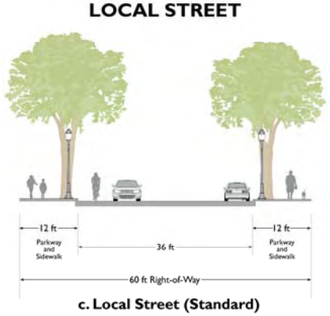


a. Boulevard (Standard)

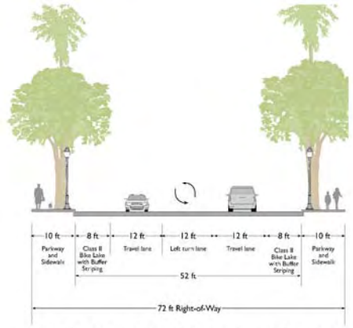


b. Boulevard (Complete Streets)

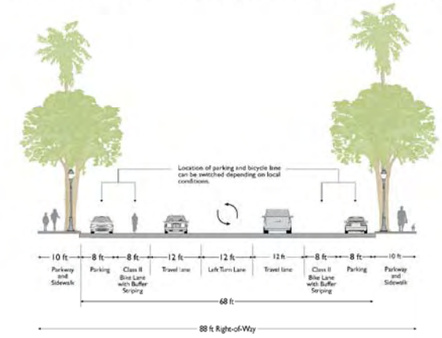
LOCAL STREET



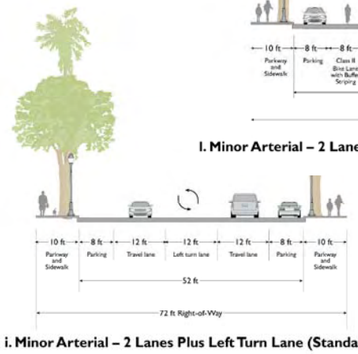
c. Local Street (Standard)



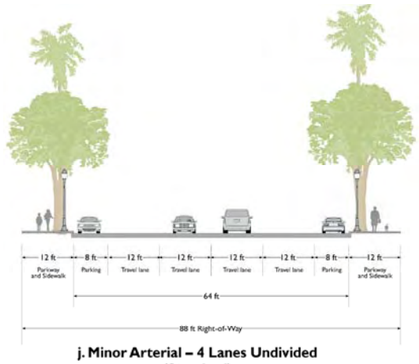
k. Minor Arterial – 2 Lanes Plus Left Turn Lane (Complete Streets)



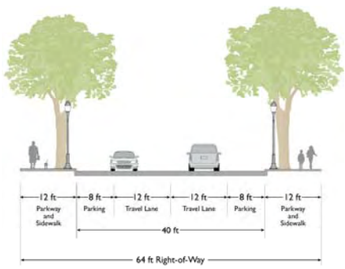
l. Minor Arterial – 2 Lanes Plus Left Turn Lane, Bicycle Lanes, and Parking (Complete Streets)



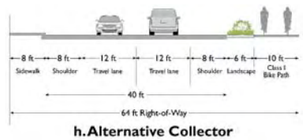
i. Minor Arterial – 2 Lanes Plus Left Turn Lane (Standard)



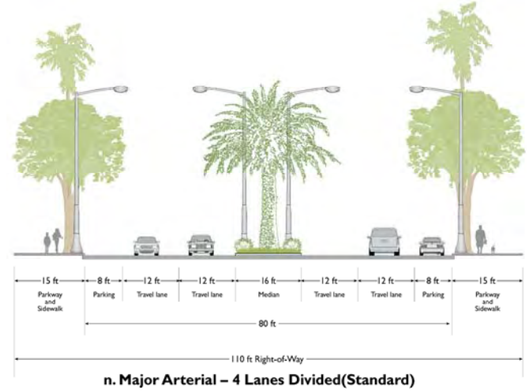
j. Minor Arterial – 4 Lanes Undivided (Standard)



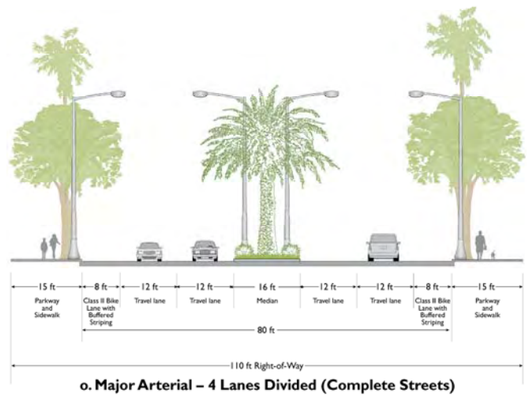
d. Collector – Residential (Standard)



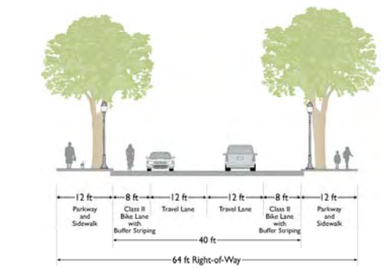
h. Alternative Collector



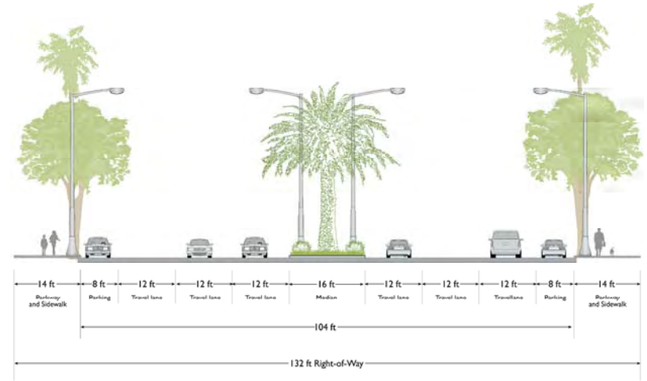
n. Major Arterial – 4 Lanes Divided(Standard)



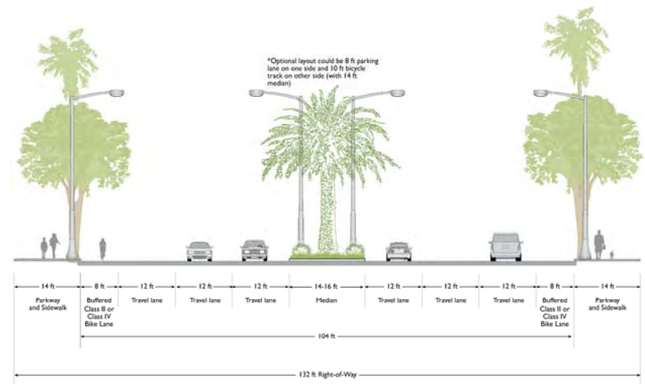
o. Major Arterial – 4 Lanes Divided (Complete Streets)



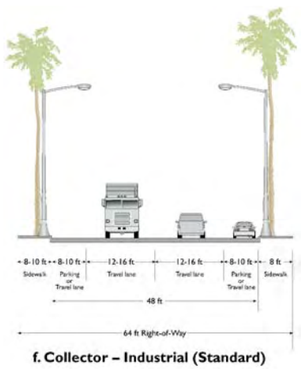
m. Rural Arterial



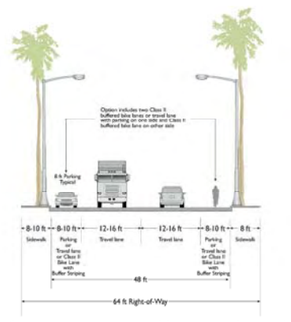
p. Major Arterial – 6 Lanes Divided (Standard)



q. Major Arterial – 6 Lanes Divided (Complete Streets)



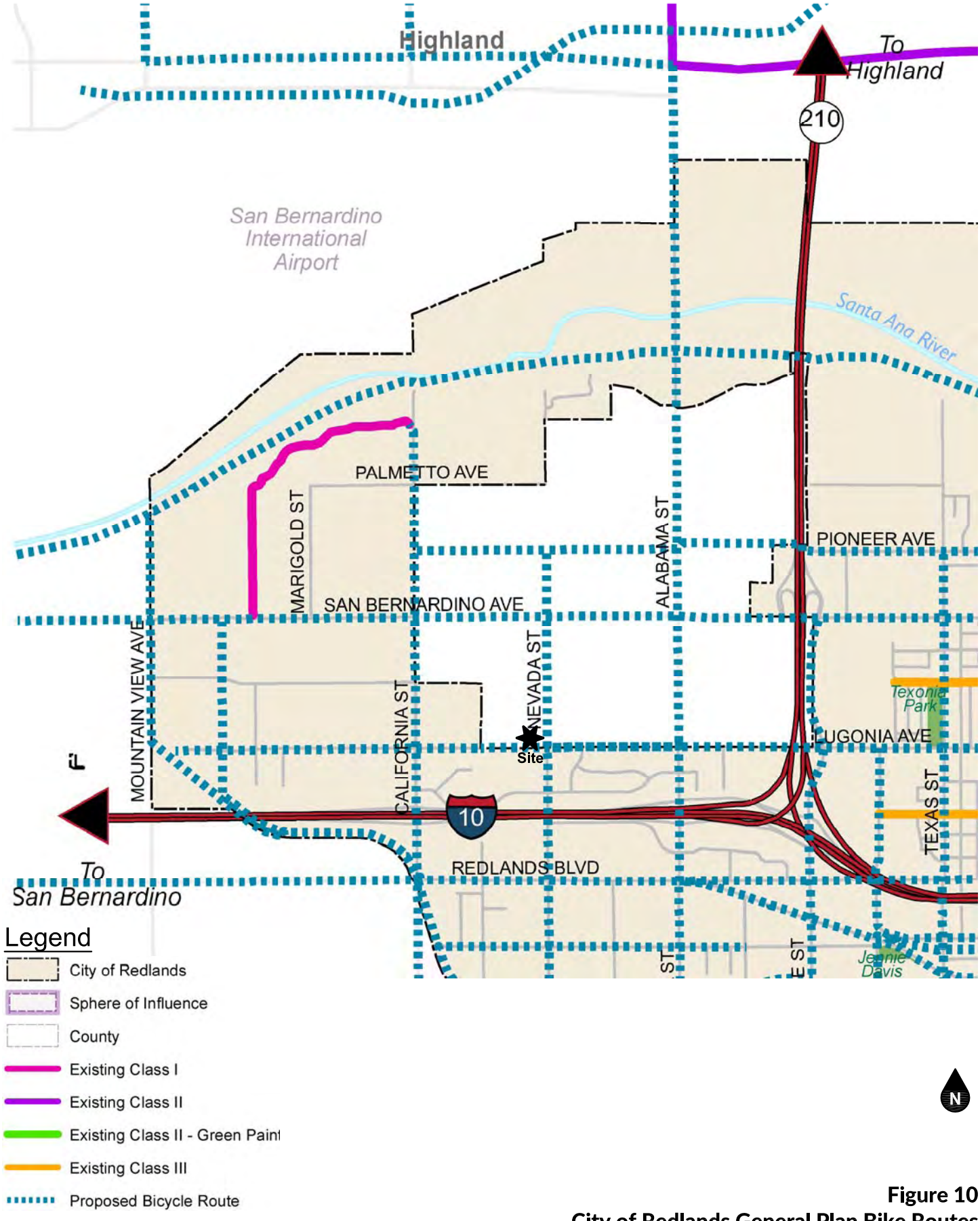
f. Collector – Industrial (Standard)



g. Collector – Industrial (Complete Streets)

Figure 9
City of Redlands General Plan Roadway Cross-Sections

Source: City of Redlands



Source: City of Redlands

Figure 10
City of Redlands General Plan Bike Routes

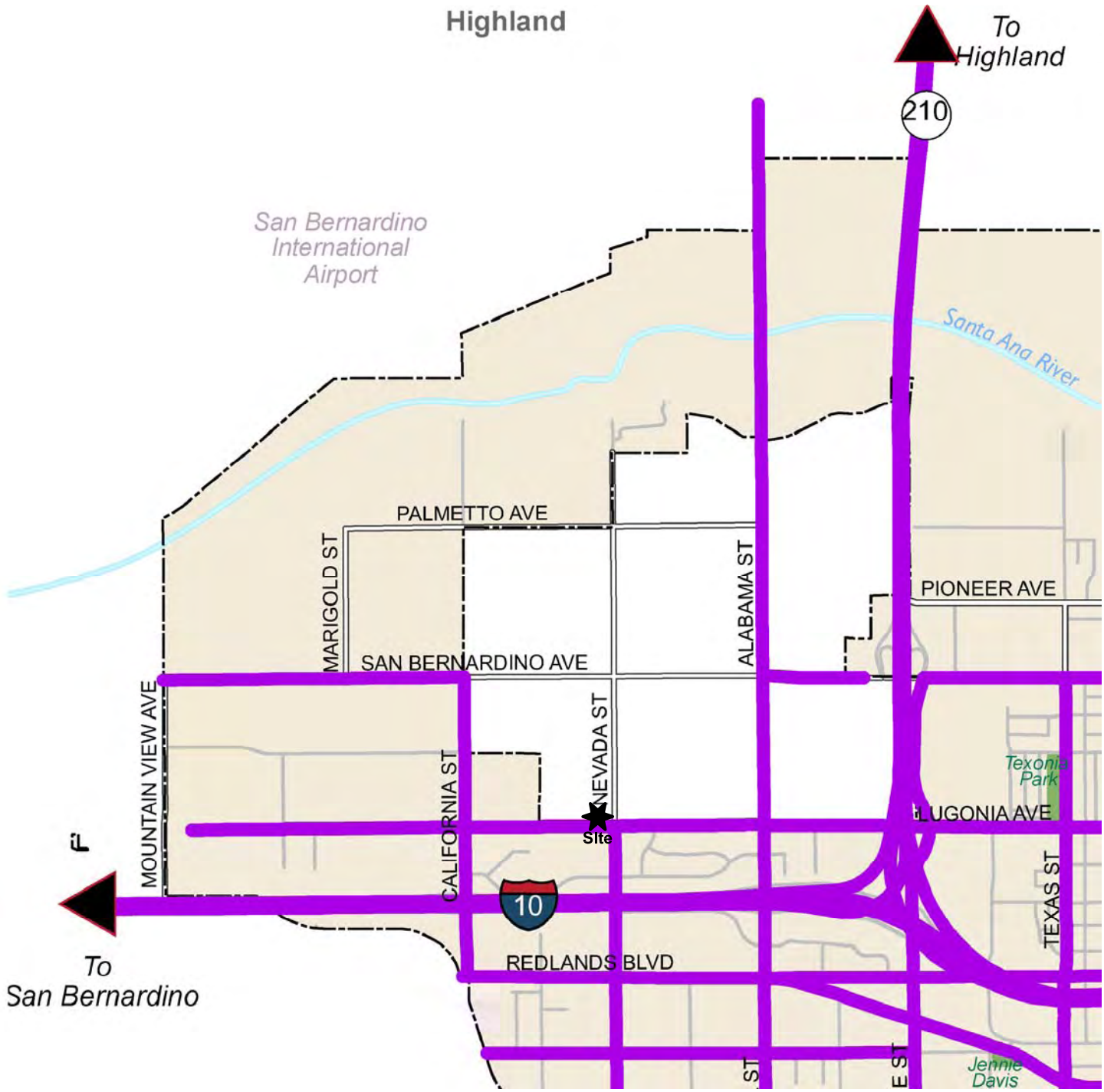
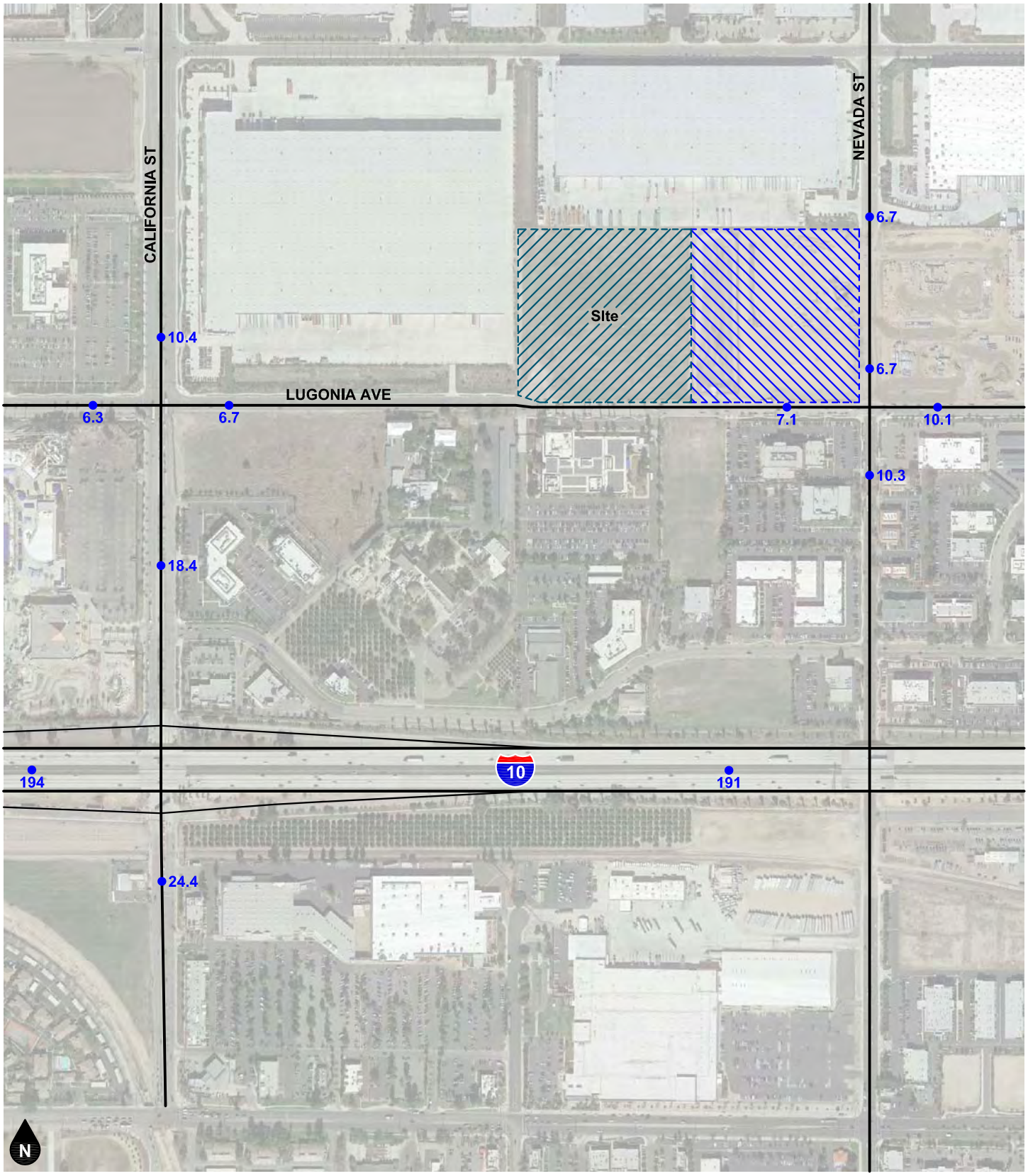


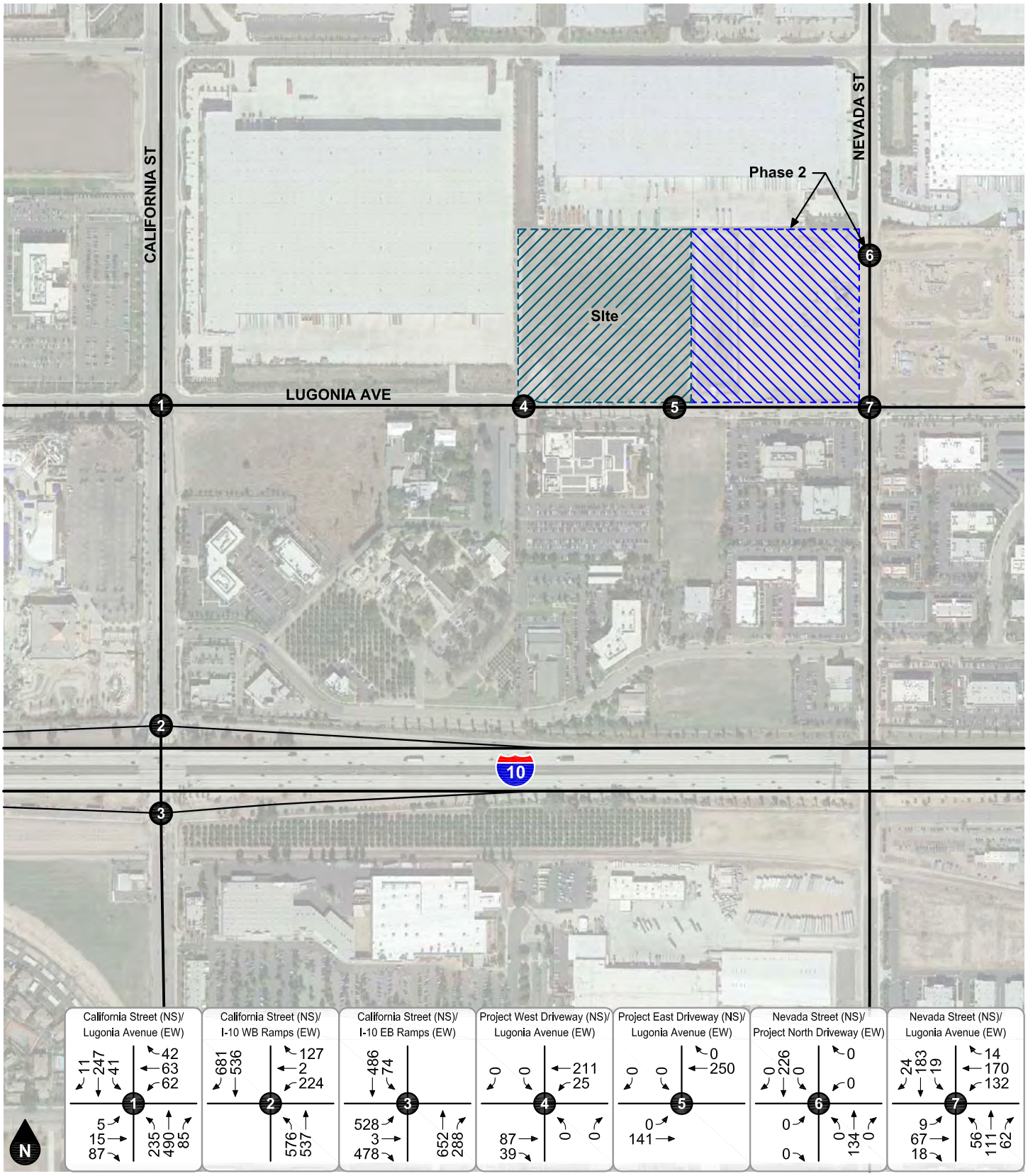
Figure 11
City of Redlands General Plan Truck Routes

Source: City of Redlands



Legend
●## Vehicles Per Day (1,000's)

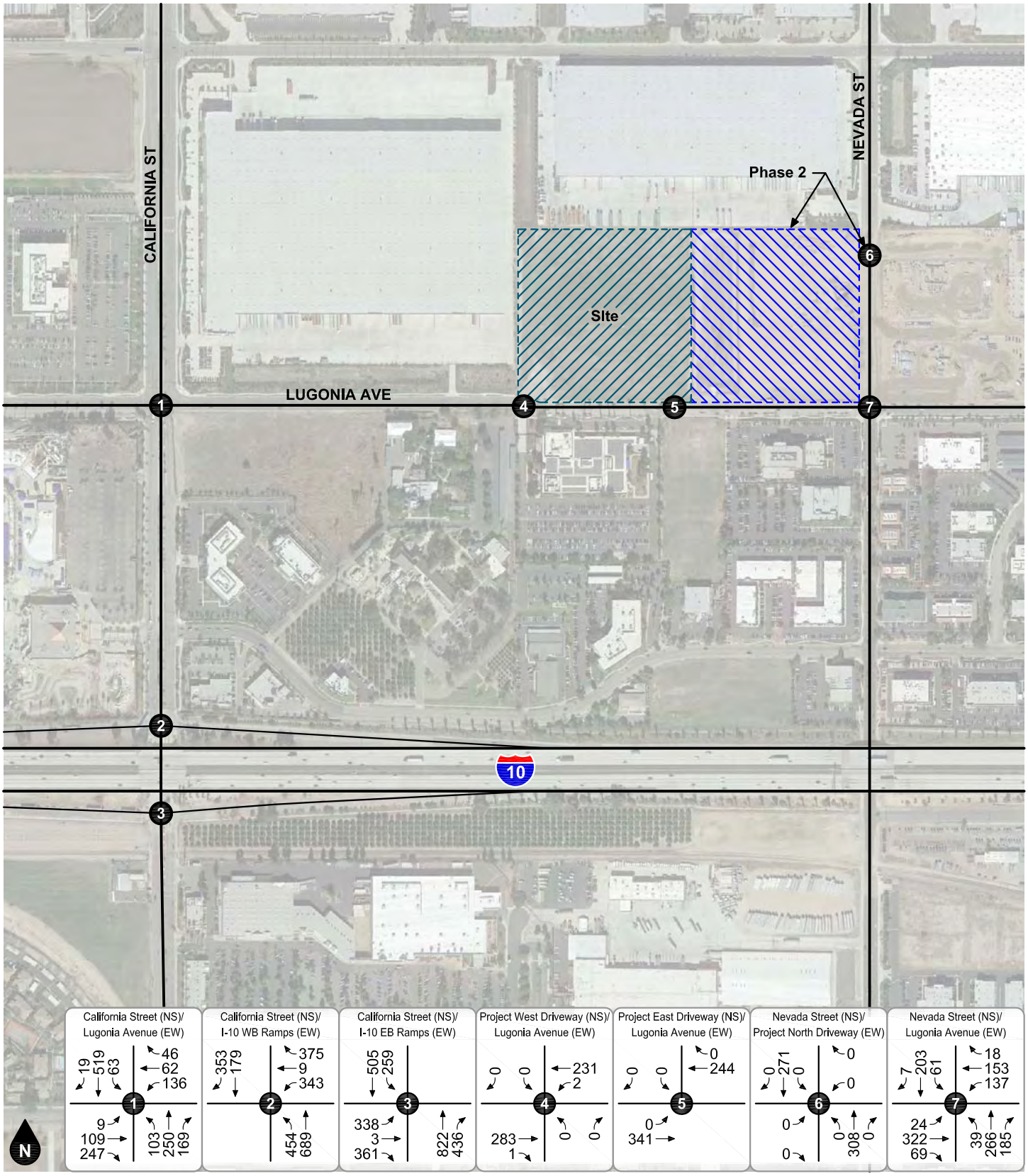
Figure 12
Existing Average Daily Traffic Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

Figure 13
Existing
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

Figure 14
Existing
PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT TRIP FORECASTS

This section describes how project trip generation, trip distribution, and trip assignment forecasts were developed. The forecast project volumes are illustrated on figures contained in this section.

PROJECT TRIP GENERATION

Table 2 shows the project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017. Trip generation rates were determined for daily trips, AM peak hour trips, and PM peak hour trips for the proposed land use. Trip generation rates for Land Use Code 221 (multi-family residential (mid-rise)) were used for the proposed project. The number of trips forecast to be generated by the proposed use are determined by multiplying the trip generation rates by the land use quantity.

As shown in Table 2, the proposed project is forecast to generate a total of approximately 1,534 daily trips, including 102 trips during the AM peak hour and 124 trips during the PM peak hour.

Easterly Adjacent Future Development (The Redlands)

In conjunction with development of the reciprocal access, a portion of the trips generated by the easterly adjacent future development (The Redlands) will be distributed through the project east access. Trips associated with development of the easterly adjacent property through the project east access are also shown in Table 2.

The majority of the Redlands Apartment project distribution will access the gated driveways on Nevada Street via the main entry/exit gate and the secondary entry/exit gate. A percentage of the distribution is routed through the Westgrove Apartments main driveway to Lugonia Avenue.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Figure 15 and Figure 16 show the forecast outbound and inbound directional distribution patterns for the project based on opening year (2020) without reciprocal access conditions. The project trip distribution patterns are based on review of existing volume data, surrounding land uses, designated truck routes, and the local and regional roadway facilities in the project vicinity.

Figure 17 and Figure 18 show the forecast outbound and inbound directional distribution patterns for the project for Year 2022 with reciprocal access conditions. The majority of the Westgrove Apartments project distribution will access the gated driveways on Lugonia Avenue via the main entry/exit gate and the secondary right-turn exit gate. A smaller percentage of the project trips distribution are expected to travel through The Redlands parking structure to/from Nevada Street. Westgrove Apartments project provides 465 on-site parking spaces and ninety-five (95) parking spaces within The Redlands parking structure. Therefore, approximately 17 percent of the Westgrove Apartments trips are expected to take access via The Redlands parking structure driveway at Nevada Street for Year 2022 conditions (95/560 = 17%).

Based on the identified project trip generation and distributions, project average daily traffic volumes (without and with reciprocal access) have been calculated and shown on Figure 19. The project AM and PM peak hour intersection turning movement volumes for project opening year (2020) without reciprocal access conditions are depicted on Figure 20 and Figure 21, respectively. The AM and PM peak hour intersection turning movement volumes expected from the project for Year 2022 with reciprocal access are depicted on Figure 22 and Figure 23.

PROJECT DESIGN FEATURES

This analysis assumes all improvements necessary for site access will be constructed in conjunction with the proposed project as Project Design Features.

CONSTRUCTION TRIPS

Compared to the project trip generation, trip generation associated with construction of the proposed project is forecast to be temporary and lower than trips generated upon completion. Therefore, traffic impacts associated with construction activity will be minor and temporary. To further lessen the impact of construction traffic, the project will be required to comply with all County of San Bernardino standard conditions pertaining to construction, including work hours, traffic control plan, haul route, access, oversized-vehicle transportation permit, site security, noise, vehicle emissions and dust control. All construction related trips should be restricted to off-peak hours, whenever possible.

Table 2
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use	Source[1]	Unit[2]	% In	% Out	Rate	% In	% Out	Rate	Rate
Multi-family Residential (Mid-Rise)	ITE 221	DU	26%	74%	0.36	61%	39%	0.44	5.44

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity[3]	Unit[2]	In	Out	Total	In	Out	Total	Daily
Multi-family Residential (Mid-Rise)	282	DU	26	76	102	76	48	124	1,534

Easterly Adjacent Future Development (The Redlands) Trips Distributed at Project East Access									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity[4]	Unit[2]	In	Out	Total	In	Out	Total	Daily
Reciprocal Trips Generated by The Redlands	90	DU	8	24	32	24	16	40	490

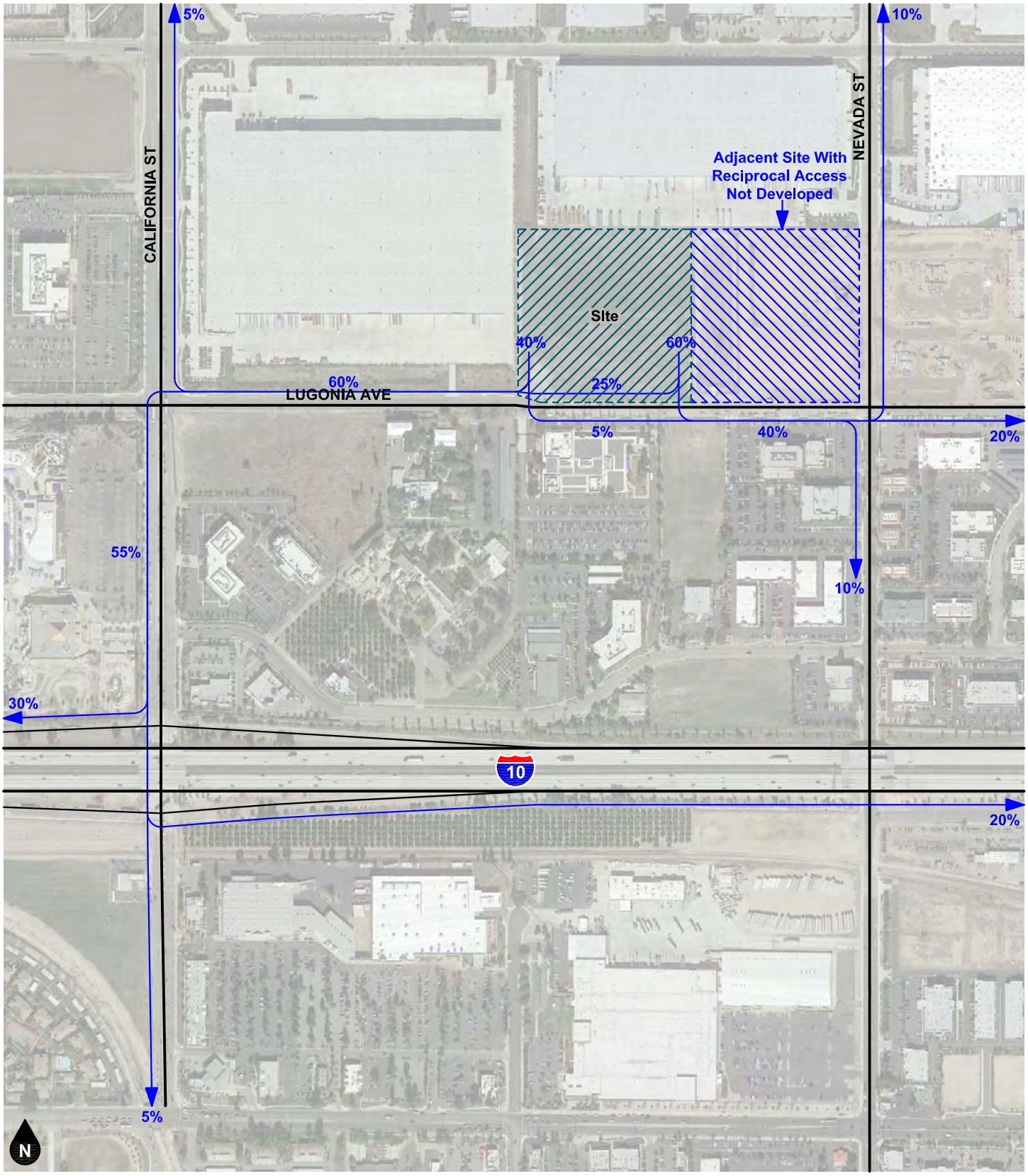
Notes:

(1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; ### = Land Use Code

(2) DU = Dwelling Units

(3) Source: Site Plan, dated August 12, 2019.

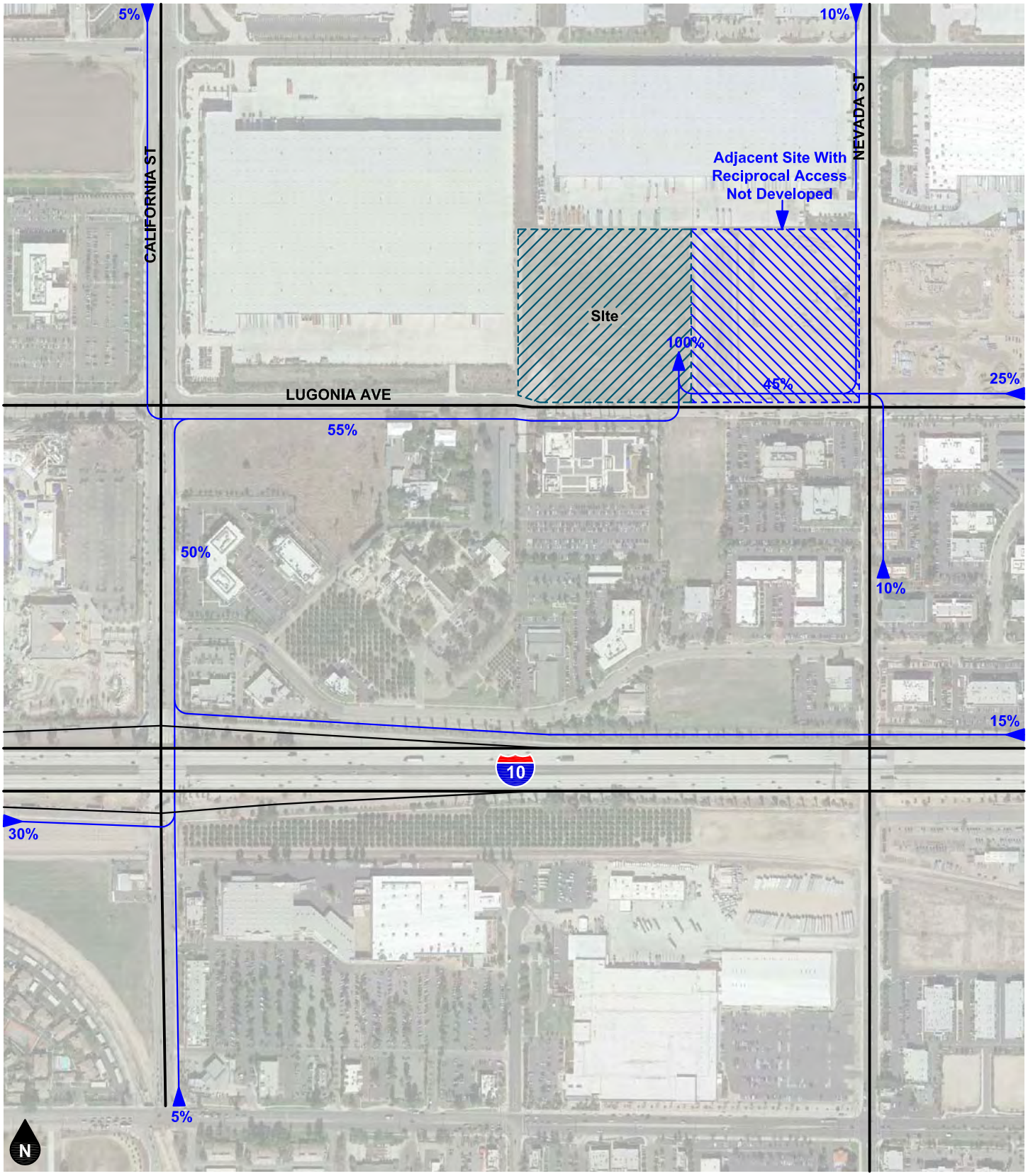
(4) Adjacent future development (The Redlands) trips included in future Year 2022 and General Plan Buildout scenarios. Trips based on 25% distribution of adjacent future development through the primary project access at Lugonia Avenue.



Legend

10% Percent From Project

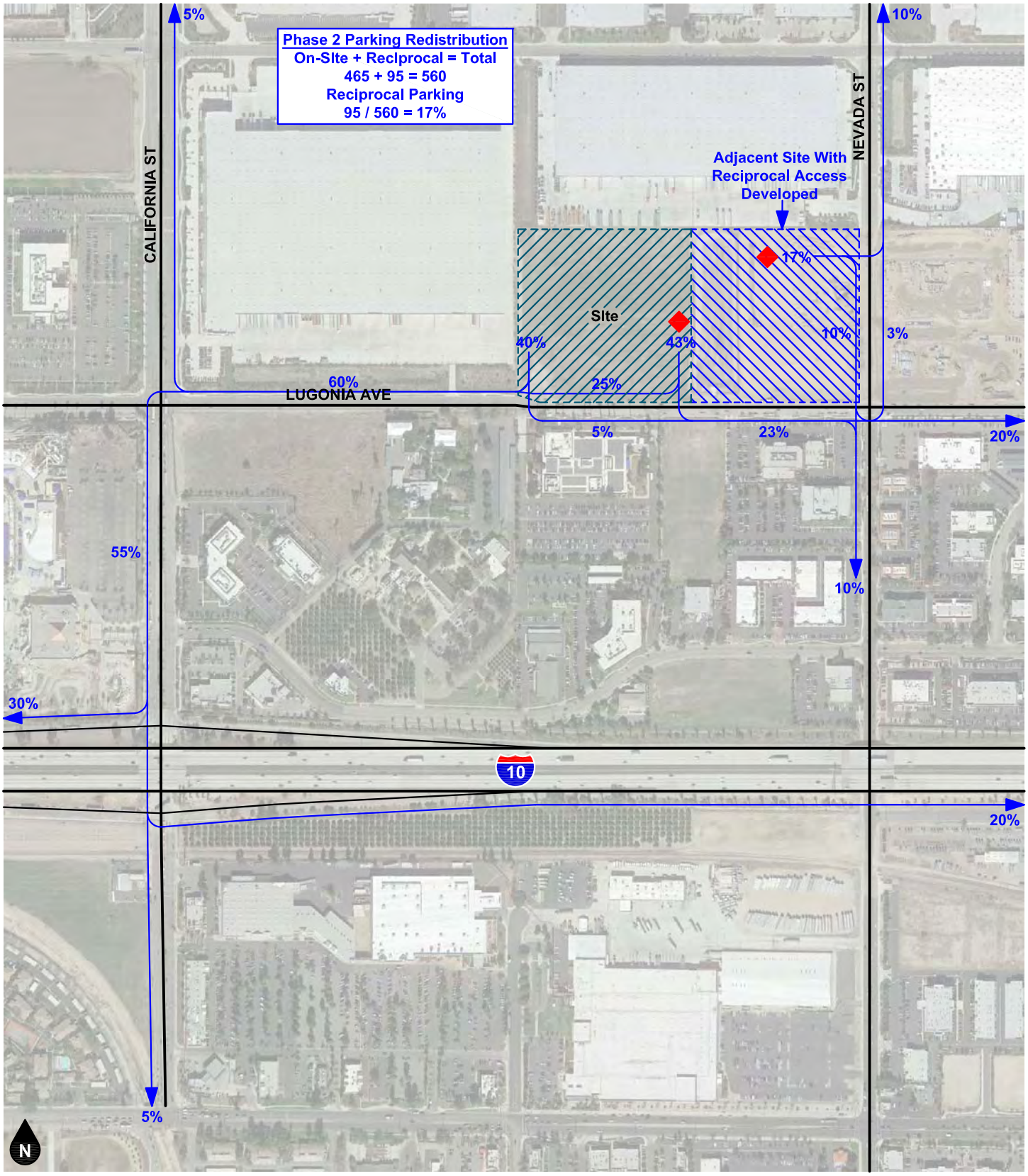
Figure 15
Project Outbound Trip Distribution - Opening Year (2020)



Legend

10% Percent To Project

Figure 16
Project Inbound Trip Distribution - Opening Year (2020)

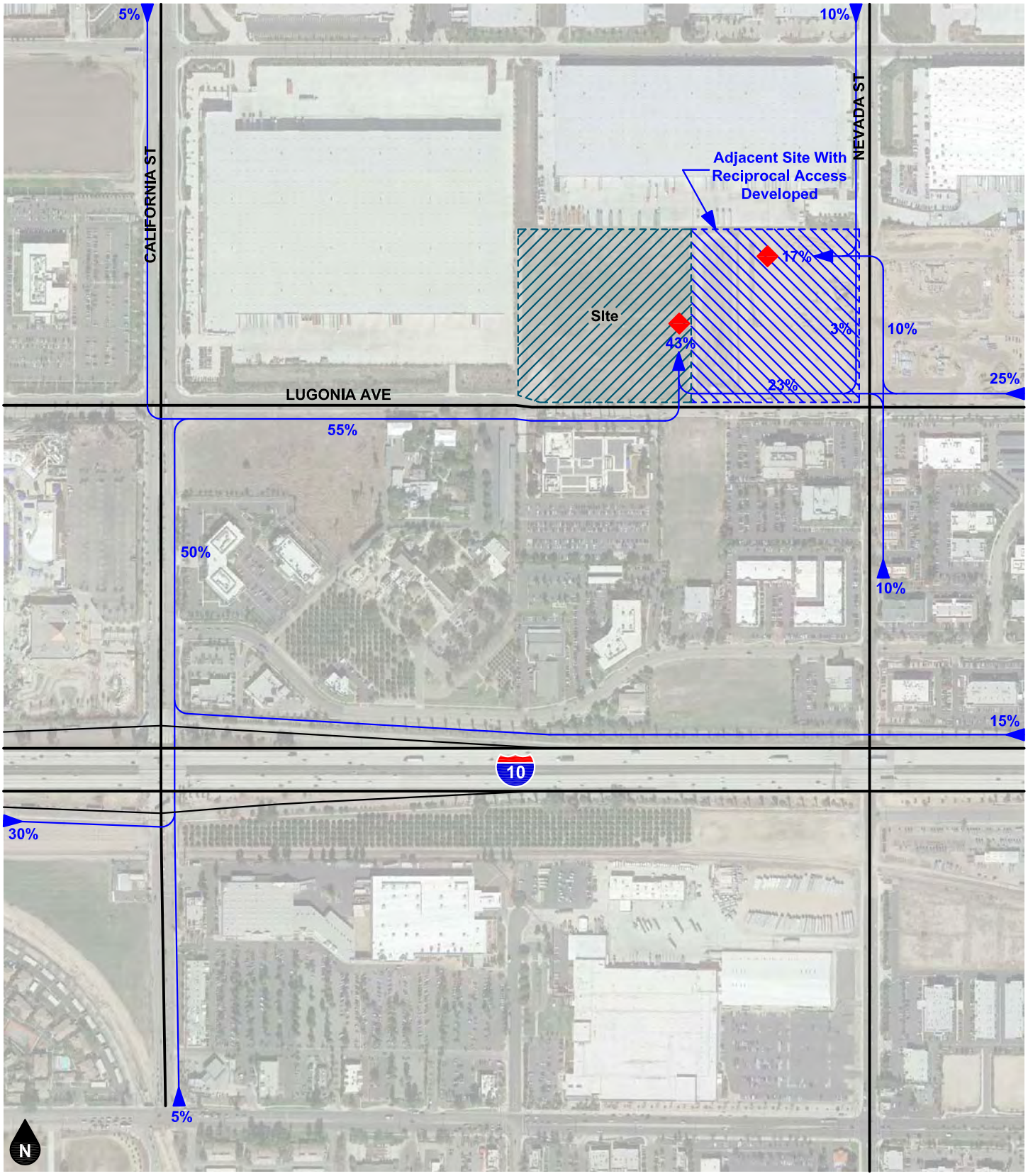


Legend

10% Percent From Project

Adjacent Project Trips Included in "Phase 2" Reciprocal Access and General Plan Buildout Scenarios

Figure 17
Project Outbound Trip Distribution
-Year 2022 With Reciprocal Access

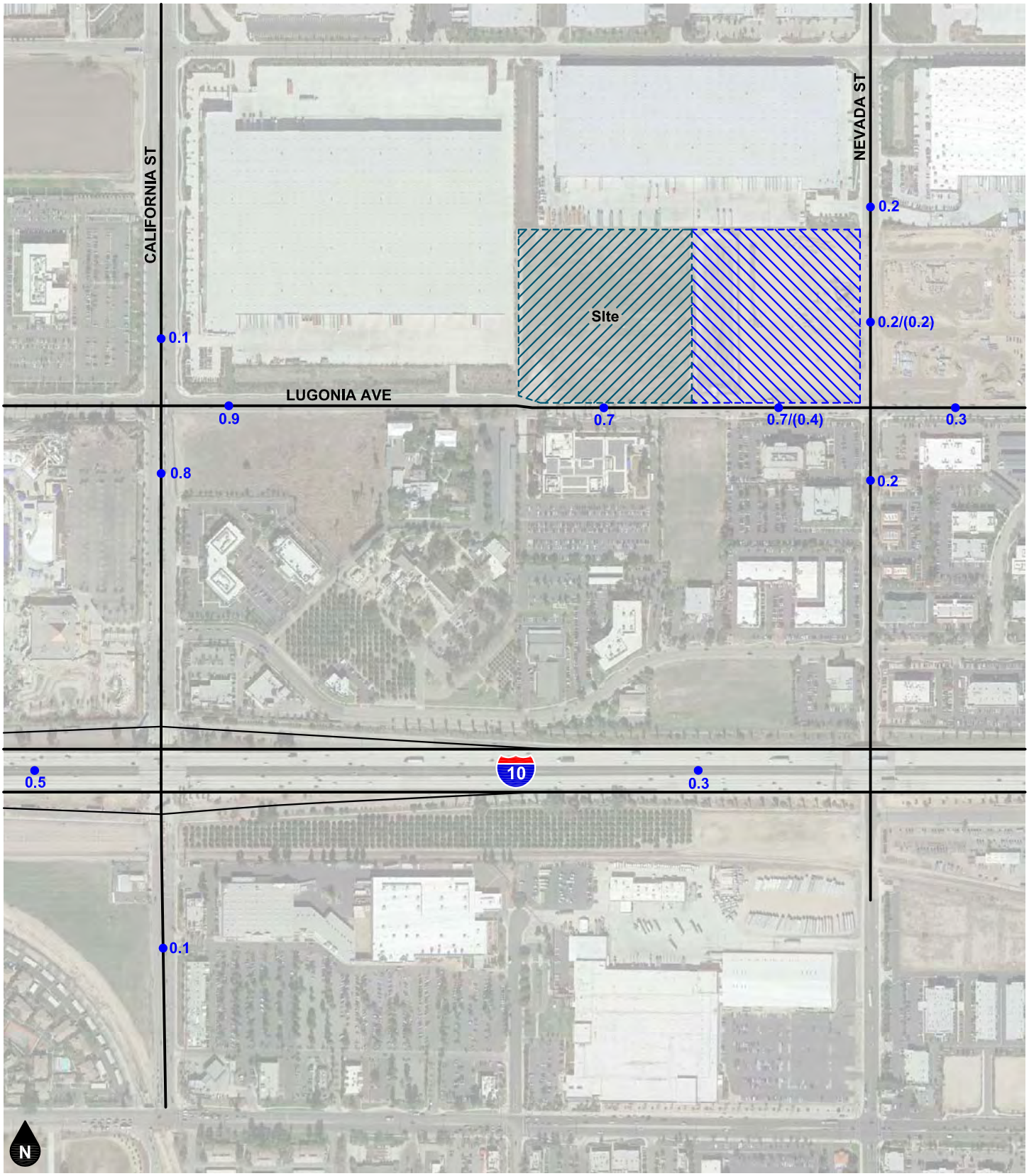


Legend

10% Percent To Project

Adjacent Project Trips Included in "Phase 2" Reciprocal Access and General Plan Buildout Scenarios

Figure 18
Project Inbound Trip Distribution
- Year 2022 With Reciprocal Access

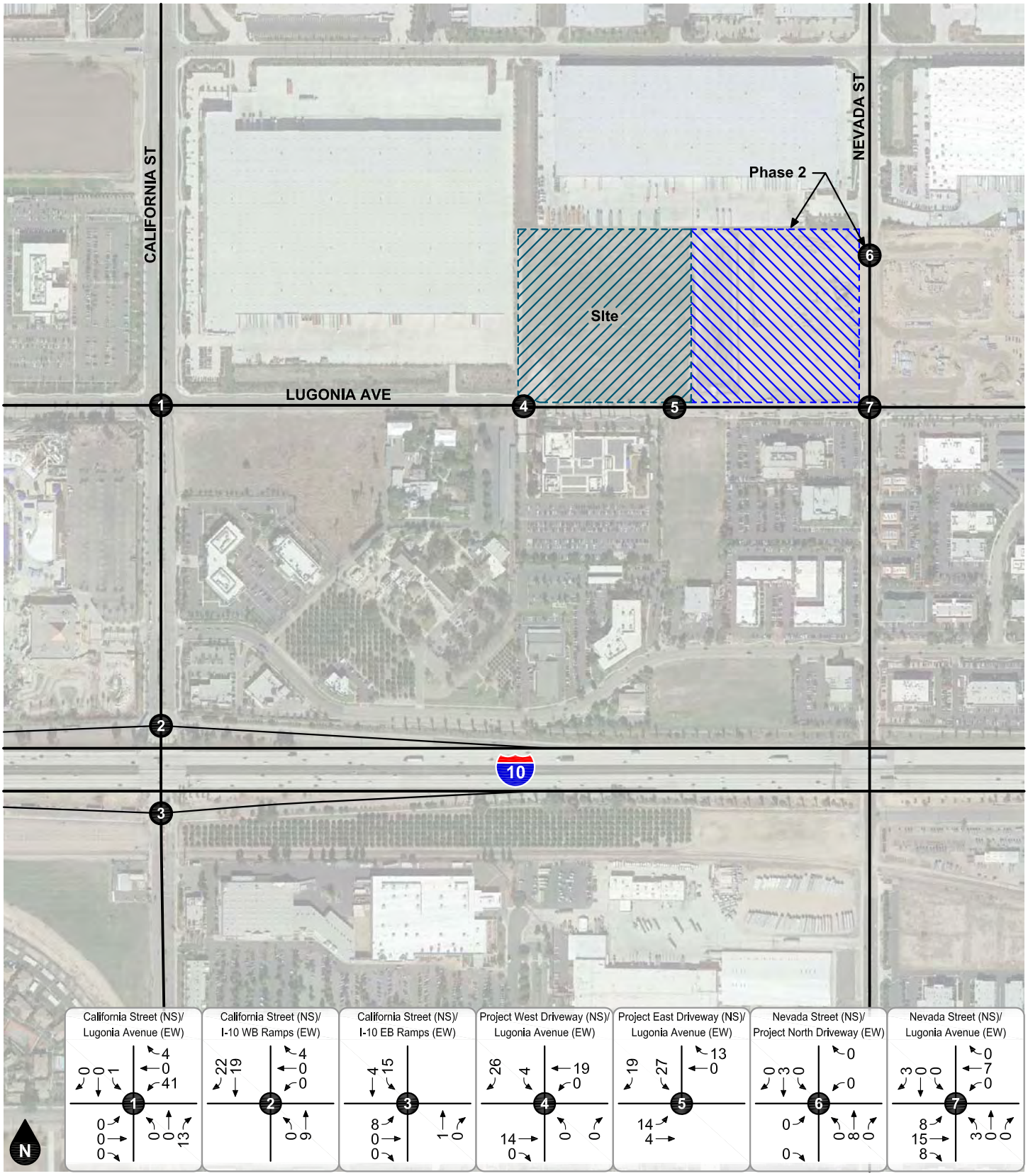


Legend

●## Vehicles Per Day (1,000's)

●##/(##) Phase 1 (Phase 2)

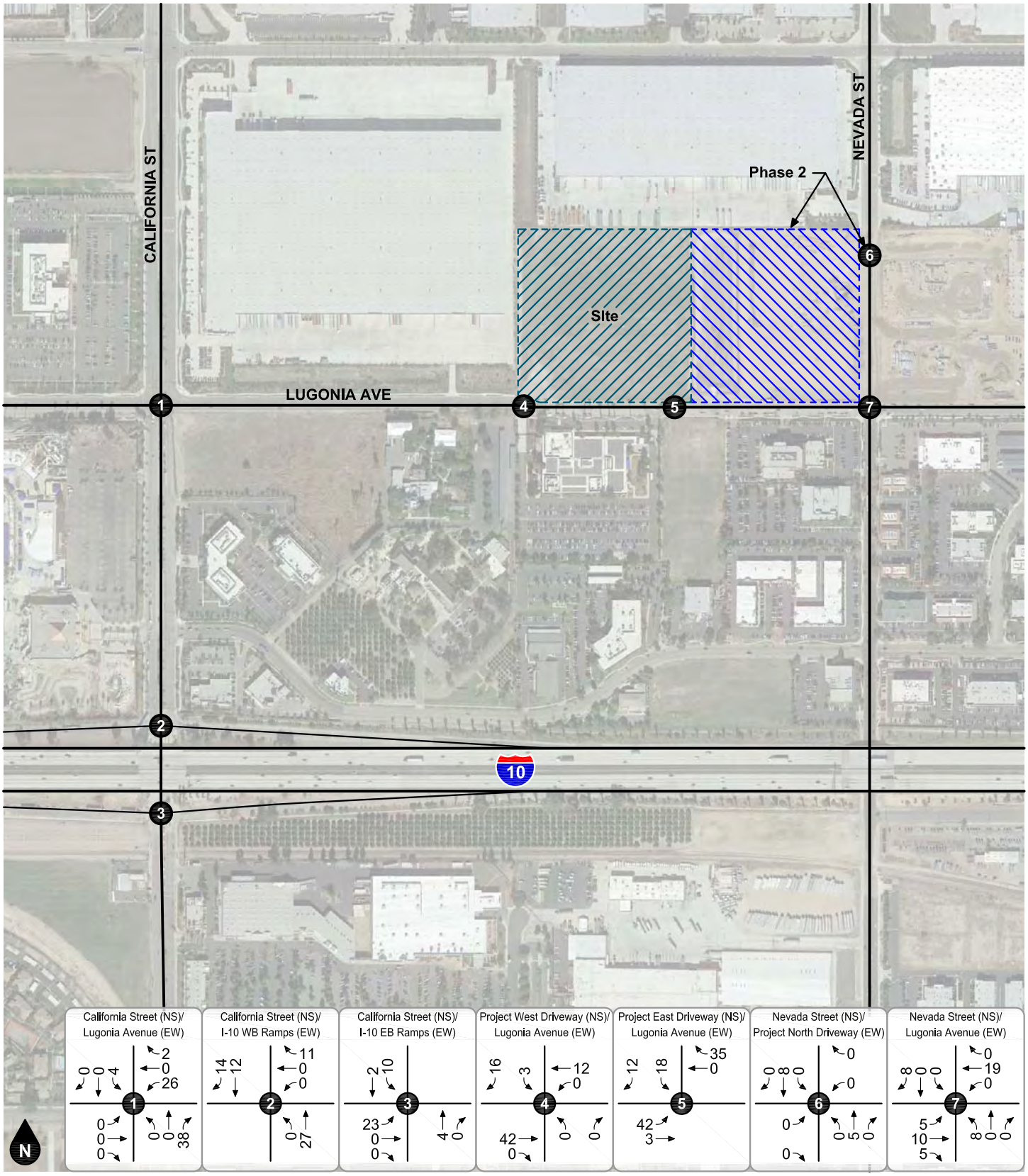
Figure 19
Project Average Daily Traffic Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

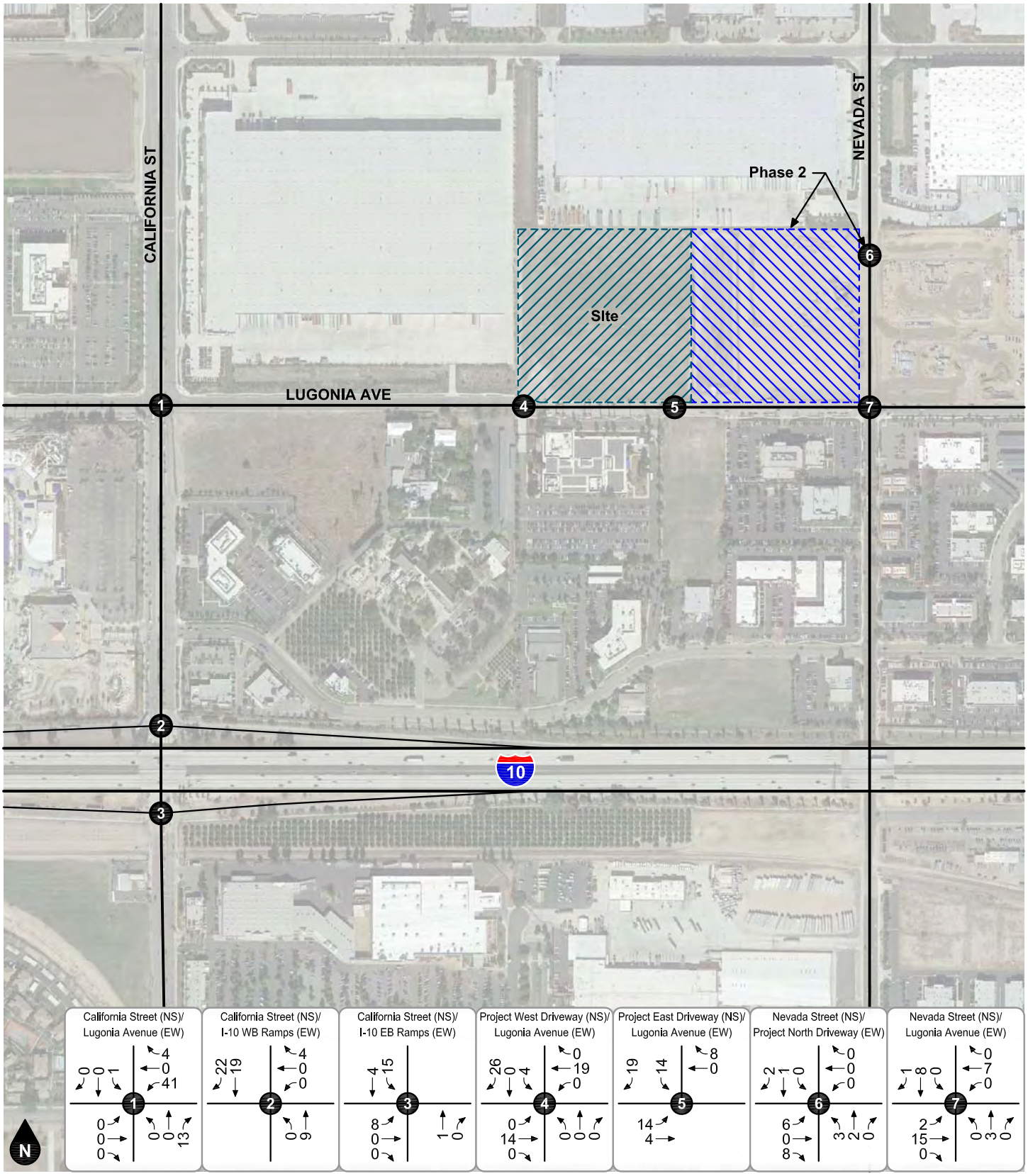
Figure 20
Project Without Reciprocal Access
AM Peak Hour Intersection Turning Movement Volumes - Phase 1



Legend

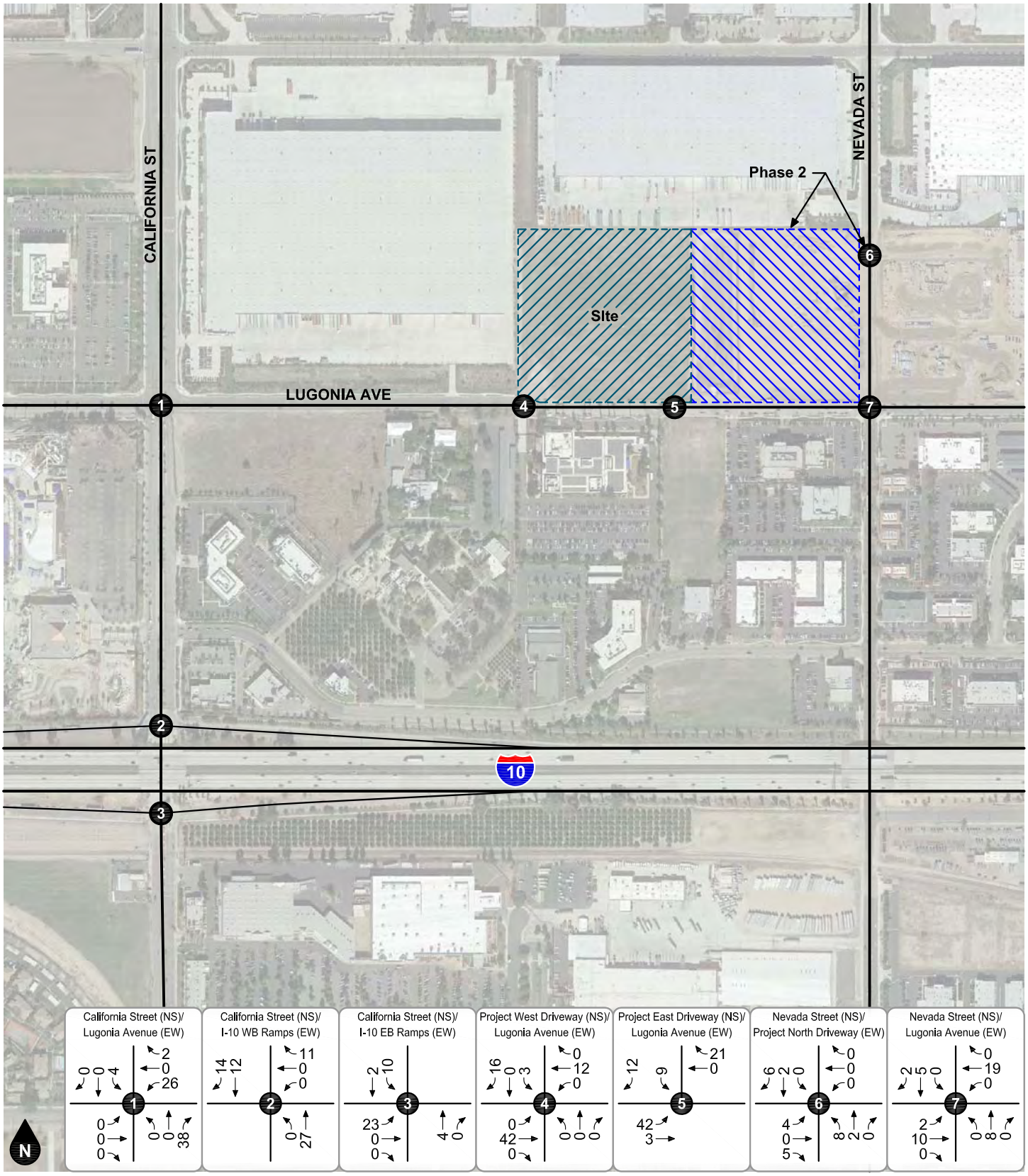
- # Study Intersection
- Site
- Adjacent Project

Figure 21
Project Without Reciprocal Access
PM Peak Hour Intersection Turning Movement Volumes



Legend
- # Study Intersection
- Site
- Adjacent Project

Figure 22
Project With Reciprocal Access
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

Figure 23
Project With Reciprocal Access
PM Peak Hour Intersection Turning Movement Volumes

5. FUTURE VOLUME FORECASTS

This section describes how future volume forecasts for each analysis scenario were developed. Forecast study area volumes are illustrated on figures contained in this section.

OTHER DEVELOPMENT

To account for trips generated by future development, trips generated by pending or approved other development projects in the County of San Bernardino and the Cities of Redlands and Loma Linda were added to the study area. Table 3 shows the trip generation summary for other development projects. Figure 24 shows the other development location map. The growth interpolation from Year 2040 projections as discussed below is assumed to account for any additional trips generated by other development projects located outside the project vicinity and not specifically listed in this report.

Figure 25 shows the forecast average daily traffic volumes for the other developments. Figure 26 and Figure 27 show the forecast AM and PM peak hour intersection turning movement volumes for trips generated by other developments in opening year (2020).

For Year 2022 conditions, other development traffic contributions from the adjacent property are included in the other development volumes. Figure 25 shows the forecast average daily traffic volumes for the other development for both Phase 1 and Phase 2. Figure 28 and Figure 29 show the forecast AM and PM peak hour intersection turning movement volumes for trips generated by other developments in Phase 2.

INTERPOLATED MODEL GROWTH (AMBIENT GROWTH)

In addition to other development trips, the Opening Year (2020) and Year 2022 projections have been interpolated by utilizing a portion of the total growth between existing and Year 2040 (SBTAM) traffic volumes.

GENERAL PLAN BUILDOUT (YEAR 2040) PROJECTIONS

General Plan buildout (Year 2040) forecasts have been determined using a growth increment approach with the San Bernardino Transportation Analysis Model (SBTAM) Year 2012 and Year 2040 travel demand model plots. This difference defines the incremental growth in forecast volumes over the 28 year period between 2012 and 2040. The incremental growth in average daily traffic volume has been factored to reflect the forecast growth between the current year (2019) and year 2040. For this purpose, linear growth between the Year 2012 base condition and the forecast Year 2040 condition was assumed. Since the increment between the current year and Year 2040 is 21 years of the 28 year time frame, a factor of 0.79 (i.e., 21/28) was used.

To derive AM and PM peak hour intersection turning movement volumes, the traffic volume growth forecasts were further refined using a spreadsheet program developed by the Federal Highway Administration and consistent with traffic volume forecasting procedures outlined in the National Cooperative Highway Research Program Report 255. The spreadsheet program uses a linear programming algorithm to calculate future turning movements based on the relationship of existing intersection turning movements and forecast model growth. The forecast turning movements developed by the spreadsheet program were reviewed for reasonableness and adjusted as necessary to ensure traffic growth. The end results of the post-processing procedures are future traffic volumes suitable for analysis. Travel demand model plots are provided in Appendix D and post-processing worksheets are provided in Appendix E.

ANALYSIS SCENARIO VOLUME FORECASTS

Existing Plus Project

Existing Plus Project volume forecasts were derived by adding the project generated trips to Existing volumes. Existing Plus Project average daily traffic volumes are shown on Figure 30. Existing Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figure 31 and Figure 32.

Opening Year (2020) Without Project

To develop Opening Year (2020) Without Project volume forecasts, Existing volumes were combined with interpolated model growth and trips generated by other developments. Opening Year (2020) Without Project average daily traffic volumes are shown on Figure 33. Opening Year (2020) Without Project AM and PM peak hour intersection turning movement volumes are shown Figure 34 and Figure 35.

Opening Year (2020) With Project

Opening Year (2020) With Project volumes were developed by adding project generated trips to the Opening Year (2020) Without Project forecast volumes. Opening Year (2020) With Project average daily traffic volumes are shown on Figure 36. Opening Year (2020) With Project AM and PM peak hour intersection turning movement volumes are shown on Figure 37 and Figure 38.

Year 2022 Without Project

To develop Year 2022 Without Project volume forecasts, Existing volumes were combined with interpolated model growth and trips generated by other developments. Year 2022 Without Project average daily traffic volumes are shown on Figure 39. Year 2022 Without Project AM and PM peak hour intersection turning movement volumes are shown Figure 40 and Figure 41.

Year 2022 With Project With Reciprocal Access

Year 2022 With Project With Reciprocal Access volumes were developed by adding project generated trips (with reciprocal access) to the Year 2022 Without Project forecast volumes. Year 2022 With Project With Reciprocal Access average daily traffic volumes are shown on Figure 42. Year 2022 With Project With Reciprocal Access AM and PM peak hour intersection turning movement volumes are shown on Figure 43 and Figure 44.

General Plan Buildout (Year 2040) Without Project

General Plan Buildout (Year 2040) Without Project volume forecasts were derived from the SBTAM travel demand model and post-processing procedures previously described. General Plan Buildout (Year 2040) Without Project average daily traffic volumes are shown on Figure 45. General Plan Buildout (Year 2040) Without Project AM and PM peak hour intersection turning movement volumes are shown on Figure 46 and Figure 47.

General Plan Buildout (Year 2040) With Project

General Plan Buildout (Year 2040) With Project volumes were developed by adding project generated trips to the General Plan Buildout (Year 2040) Without Project forecast volumes. General Plan Buildout (Year 2040) With Project average daily traffic volumes are shown on Figure 48. General Plan Buildout (Year 2040) With Project AM and PM peak hour intersection turning movement volumes are shown on Figure 49 and Figure 50.

General Plan Buildout (Year 2040) With Project With Reciprocal Access

General Plan Buildout (Year 2040) With Project volumes were developed by adding project generated trips (with reciprocal access, including reciprocal trips generated by The Redlands) to the General Plan Buildout (Year 2040) Without Project forecast volumes. General Plan Buildout (Year 2040) With Project With Reciprocal Access average daily traffic volumes are shown on Figure 51. General Plan Buildout (Year 2040) With Project With Reciprocal Access AM and PM peak hour intersection turning movement volumes are shown on Figure 52 and Figure 53.

Table 3 (1 of 2)
Cumulative Other Development Trip Generation

City/ County	ID	Address/Name	Land Use[1]	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
						In	Out	Total	In	Out	Total	
San Bernardino County	1	Pioneer Industrial Center Expansion[3]	Warehouse-Cars	216.050	TSF	14	5	19	7	14	21	289
			Warehouse-Trucks			10	3	13	3	10	13	189
			Subtotal Warehouse		PCE	24	8	32	10	24	34	478
	2	Perricone Industrial Center[4]	Warehouse-Cars		TSF	10	4	15	5	11	16	222
			Warehouse-Trucks			6	3	9	3	7	10	144
			Subtotal Warehouse		PCE	16	7	23	8	18	26	366
	3	Mountain Grove at Citrus Plaza[5]	Apartments	281.000	DU	28	115	143	112	62	174	1,888
			Hotel	168.000	RM	57	37	94	52	47	99	1,373
			Commercial Retail	338.060	TSF	105	63	168	391	427	817	8,639
			Subtotal Mixed Use			190	215	405	555	536	1,090	11,900
	4	Chiming Industrial Project[6]	Warehouse-Cars	614.328	TSF	39	15	54	20	39	59	821
			Warehouse-Trucks			25	10	35	13	25	38	531
			Subtotal Warehouse		PCE	64	25	89	33	64	97	1,352
	5	The Crossings[7]	Apartments	340	DU	34	139	173	136	75	211	2,261
			Specialty Retail	6.377	TSF	5	3	8	8	10	18	283
			Subtotal Mixed Use			39	142	181	144	85	229	2,544
	6	Redlands Apartment Complex[8]	Multi-family Residential (Mid-Rise)	360	DU	34	96	130	97	61	158	1,958
City of Redlands	7	Redlands Commerce Center[9]	Warehouse-Cars	1100.451	TSF	70	26	96	35	70	105	1,471
			Warehouse-Trucks			46	18	64	22	46	68	952
			Subtotal Warehouse		PCE	116	44	160	57	116	173	2,423
	8	Lugonia Marriott	Hotel	88	RM	25	16	41	27	26	53	736
	9	1700 Orange Tree Lane[10]	Hotel	124	RM	39	27	66	39	35	74	1,013
	10	Orange Tree Lane Carwash[11]	Carwash	1	CW	35	29	64	67	67	134	944
	11	Redlands Crossing[12]	Mixed Commercial Retail	284.500	TSF	543	433	976	698	703	1,401	19,481
	12	SWC Lugonia/Texas	Multi-Family Residential	80	DU	9	28	37	28	17	45	586
		921 New York Street	Car Dealership	2.890	TSF	4	1	5	3	4	7	80
			Subtotal Mixed Use			13	29	42	31	21	52	666
	13	Home 2Suite Hilton[13]	Hotel	77	RM	24	17	41	24	23	47	629
	14	Park Avenue Office Building	Office	100.800	TSF	138	19	157	25	125	150	982
	15	1600 Orange Apartments[14]	Apartments	412	DU	31	133	164	128	69	197	2,736
	16	614, 624, 634 Nevada	Light Industrial-Cars	16.676	TSF	11	1	12	2	11	13	91
			Light Industrial-Trucks			8	0	8	1	8	9	38
			Subtotal Light Industrial		PCE	19	1	20	3	19	22	129
	17	Iowa @ Park[15]	Light Industrial-Cars	78.565	TSF	50	7	57	8	52	60	431
			Light Industrial-Trucks			36	0	36	7	34	41	181
			Subtotal Light Industrial			86	7	93	15	86	101	612
	18	NWC Alabama / Park[16]	Warehouse-Cars	154.000	TSF	10	3	13	4	11	15	138
			Warehouse-Trucks			16	5	21	6	17	23	213
			Subtotal Warehouse			26	8	34	10	28	38	351
	19	SEC Park/Iowa[17]	Warehouse-Cars	153.994	TSF	10	3	13	4	11	15	138
			Warehouse-Trucks			16	5	21	6	17	23	213
			Subtotal Warehouse			26	8	34	10	28	38	351
	20	Alabama @ Park[18]	Light Industrial-Cars	170.443	TSF	109	15	124	16	115	131	936
			Light Industrial-Trucks			72	7	79	11	72	83	628
			Subtotal Light Industrial			181	22	203	27	187	214	1,564

Table 3 (2 of 2)
Cumulative Other Development Trip Generation

City/ County	ID	Address/Name	Land Use[1]	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
						In	Out	Total	In	Out	Total	
City of Redlands	21	10797 New Jersey Street[19]	Light Industrial-Cars	61.520	TSF	23	3	26	4	26	30	240
			Light Industrial-Trucks			35	5	40	3	19	22	152
			Subtotal Light Industrial			58	8	66	7	45	52	392
	22	1890 Orange Avenue	Student Services Building	1.952	TSF	6	4	10	1	1	2	30
City of Loma Linda	23	Lewis Commercial Development[21]	Commercial Center	121.970	TSF	132	81	213	302	327	629	6,881
			Average Pass-by (ITE 820)	34% PM	%	-	-	-	(103)	(111)	(214)	-
			Subtotal			132	81	213	199	216	415	6,881
		Phase Three Concept SPA-D Specific Plan[21]	Residential	481	DU	57	181	238	185	110	295	3,648
			Commercial Center	155.730	TSF	142	87	229	362	392	754	8,125
			Community Overlay	25.000	TSF	13	7	20	33	38	71	702
			City Park	26.5	AC	0	0	0	1	2	3	20
			Internal Capture	15.3/13.8	%	0	0	0	(84)	(76)	(160)	(1,801)
			Average Pass-by (ITE 820)	34% PM	%	0	0	0	(123)	(133)	(256)	0
			Subtotal			212	275	487	374	333	707	10,694
		Subtotal				344	356	700	573	549	1,122	17,575
	24	Citrus Trails Master Plan[22]	Residential	586	DU	75	204	279	223	141	364	4,008
			Commercial Center	309.060	TSF	190	116	306	601	651	1,252	12,949
			City Park	21.8	AC	0	0	0	1	1	2	14
			Internal Capture	15.2/14.7	%	-	-	-	(125)	(121)	(246)	(2,493)
			Average Pass-by (ITE 820)	34% PM	%	-	-	-	(204)	(222)	(426)	-
			Subtotal			265	320	585	496	450	946	14,478
	25	Citrus Lane[23]	Single Family Residential	35	DU	7	20	27	22	13	35	333
	26	Citrus Glen [24]	Single Family Residential	95	DU	18	53	71	60	35	95	904
TOTAL						3,992	4,152	8,144	5,227	5,284	10,511	140,764

Notes:

(1) Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; ### = Land Use Code, unless otherwise noted.

(2) DU = Dwelling Units; TSF = Thousand Square Feet; PCE = Passenger Car Equivalent; RM = Hotel Rooms, AC = Acres..

(3) Source: Pioneer Industrial Center Expansion Traffic Impact Analysis, Kunzman Associates, Inc. (August 11, 2014).

(4) Source: Perricone Industrial Center Traffic Impact Analysis (Revised), Albert A. Webb Associates. (January 7, 2015).

(5) Source: Mountain Grove at Citrus Plaza Project Traffic Impact Analysis Peer Review , Kunzman Associates, Inc. (December 12, 2007).

(6) Source: Chiming Inc. Industrial Project Traffic Impact Analysis (Revised), Kunzman Associates, Inc. (September 10, 2014).

(7) Source: Crossings at Redlands Traffic Impact Analysis, Kunzman Associates, Inc. (October 23, 2014).

(8) Source: The Redlands Traffic Impact Analysis (Revised), Kunzman Associates, Inc. (July 15, 2017).

(9) Source: Redlands Commerce Center Buildings 1 and 2 Traffic Impact Analysis (Revised). Kunzman Associates, Inc. (September 5, 2014).

(10) Source: 1700 Orange Tree Lane Hotel Traffic Impact Study, RK Engineering, Inc. (July 6, 2017).

(11) Source: Orange Tree Lane Car Wash Traffic Impact Analysis, Ganddini Group, Inc. (January 3, 2018).

(12) Source: Redlands Crossing Traffic Impact Analysis, Urban Crossroads, Inc. (November 2, 2011).

(13) Source: Traffic Impact Analysis Homes2 Suites By Hilton Redlands , Transpogroup (February 14, 2017).

(14) Source: SD Homes Redlands Apartments Traffic Impact Analysis, Kunzman Associates, Inc. (September 9, 2018).

(15) Source: Traffic Study Iowa @ Park Light Industrial, LSA, Inc. (August 14, 2013).

(16) Source: Alabama and Park Warehouse Project Traffic Impact Analysis, Kunzman Associates (July 18, 2018).

(17) Source: Iowa and Park Warehouse Project Traffic Impact Analysis (Revised), Kunzman Associates (February 22, 2018).

(18) Source: Traffic Study Alabama @ Park Light Industrial, LSA, Inc. (August 14, 2013).

(19) Square footage based on acreage and similar industrial uses in City of Redlands.

(20) Source: Redlands USD Middle School 5 Traffic Impact Analysis, Kunzman Associates, Inc. (July 13, 2013).

(21) Source: Phase Three Concept SPA-D Specific Plan Traffic Impact Analysis, Kunzman Associates, Inc. (March 9, 2018).

(22) Source: Citrus Trails Master Plan Traffic Impact Analysis, Kunzman Associates, Inc. (September 21, 2016).

(23) Source: Tentative Tract Map No. 18963 Traffic Impact Analysis, Kunzman Associates, Inc. (August 6, 2014).

(24) Source: Orchard Heights Traffic Impact Analysis, Kunzman Associates, Inc. (September, 2015).

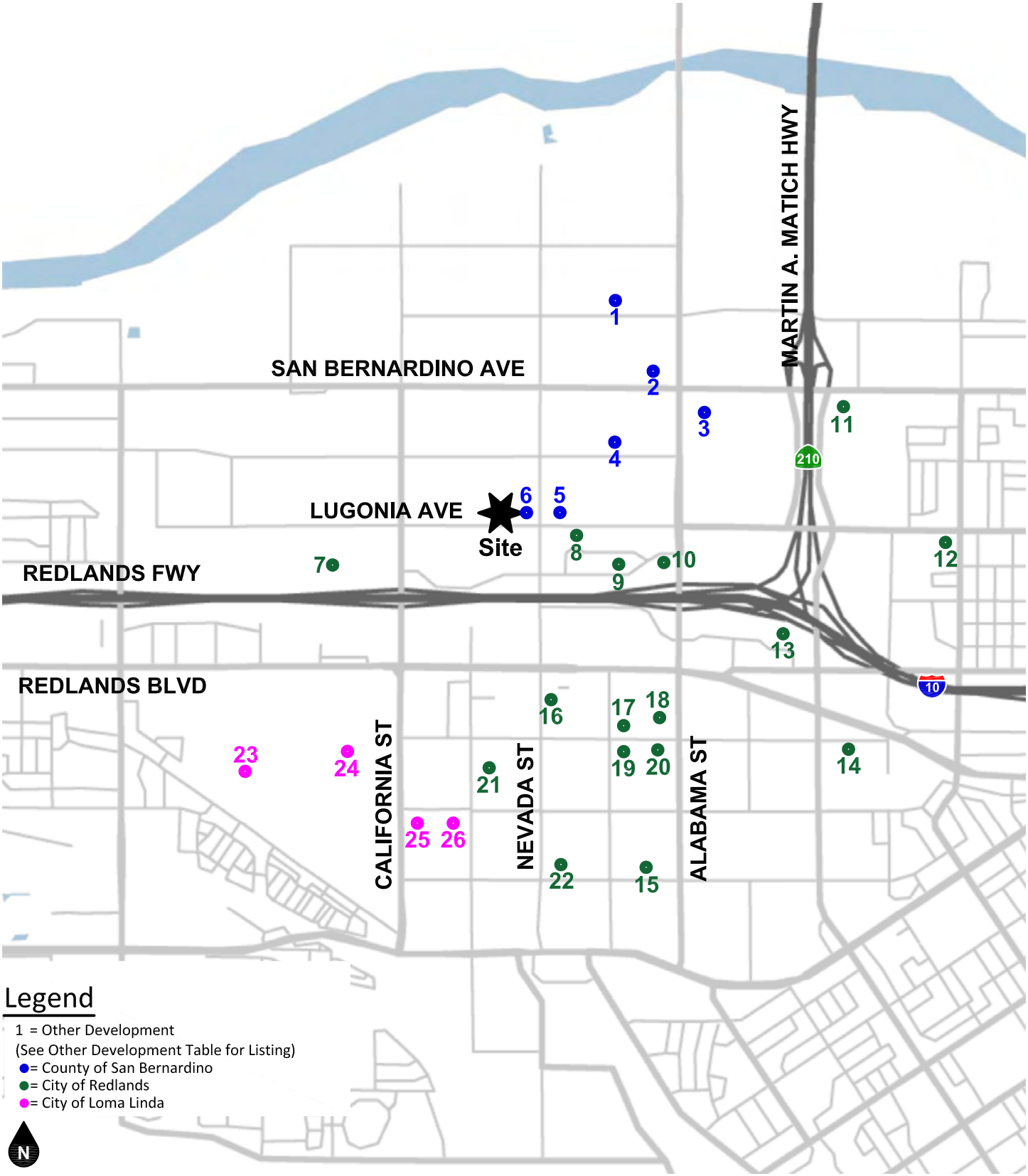
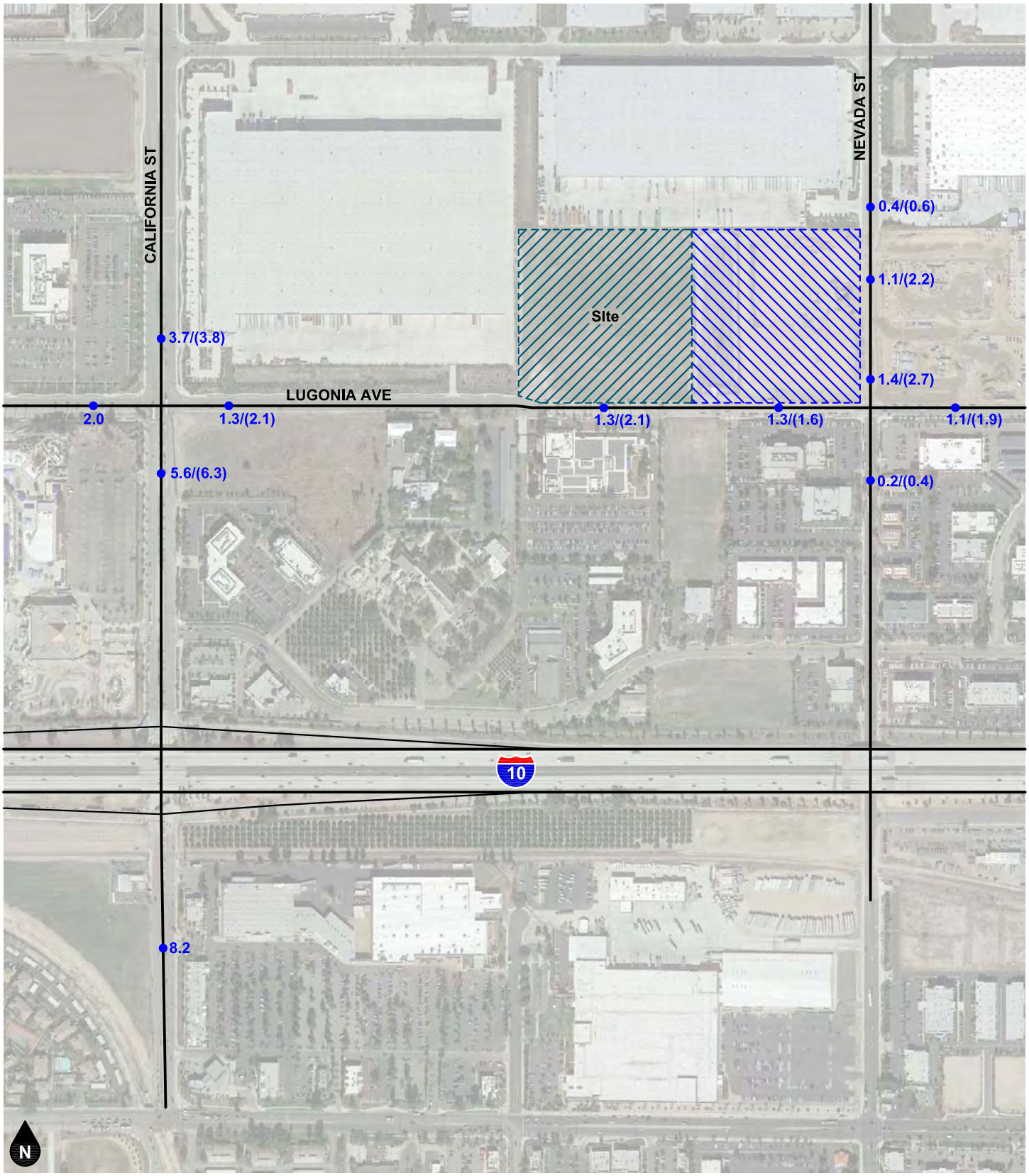


Figure 24
Other Development Location Map

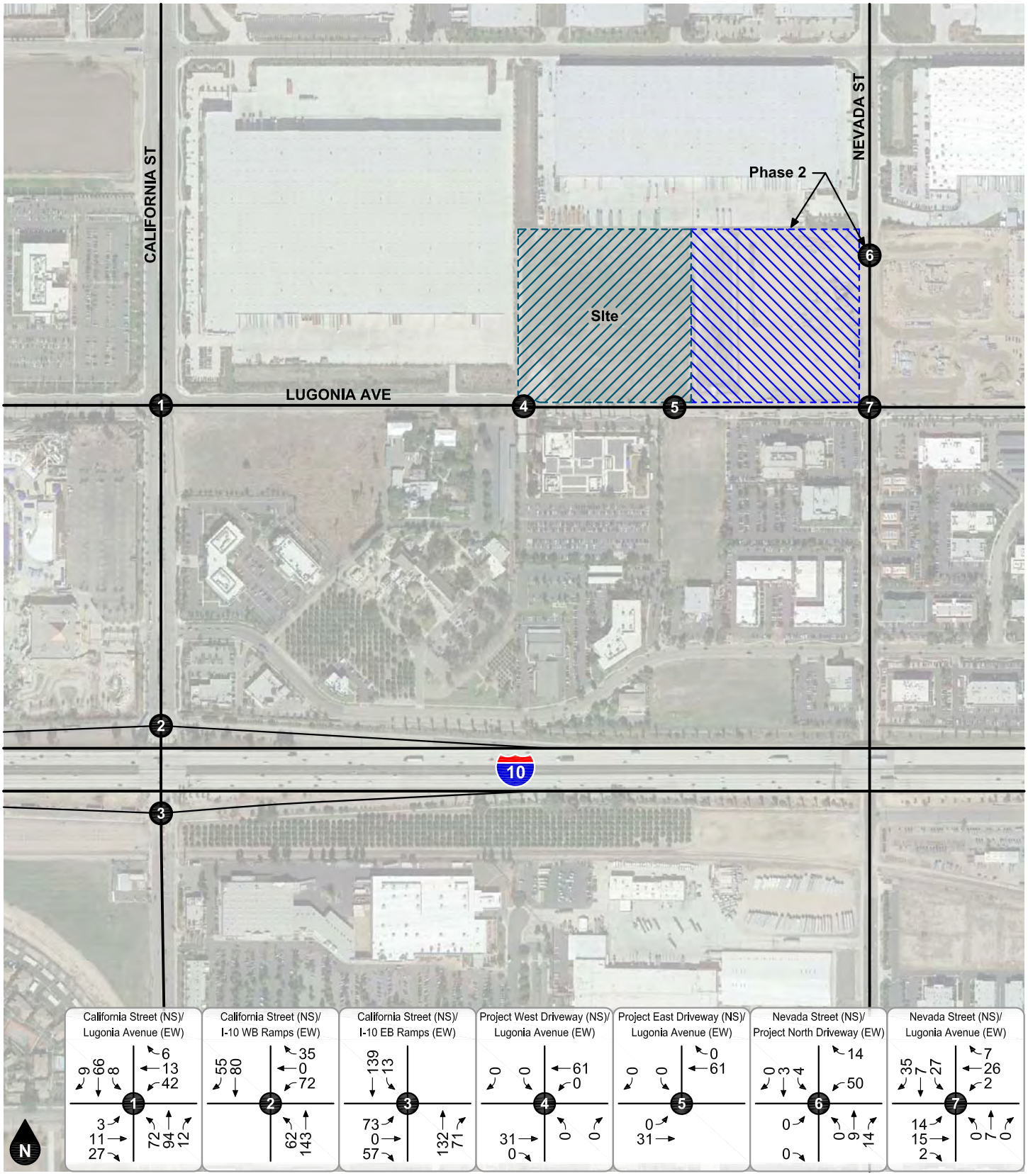


Legend

●## Vehicles Per Day (1,000's)

●##/(##) Phase 1 (Phase 2)

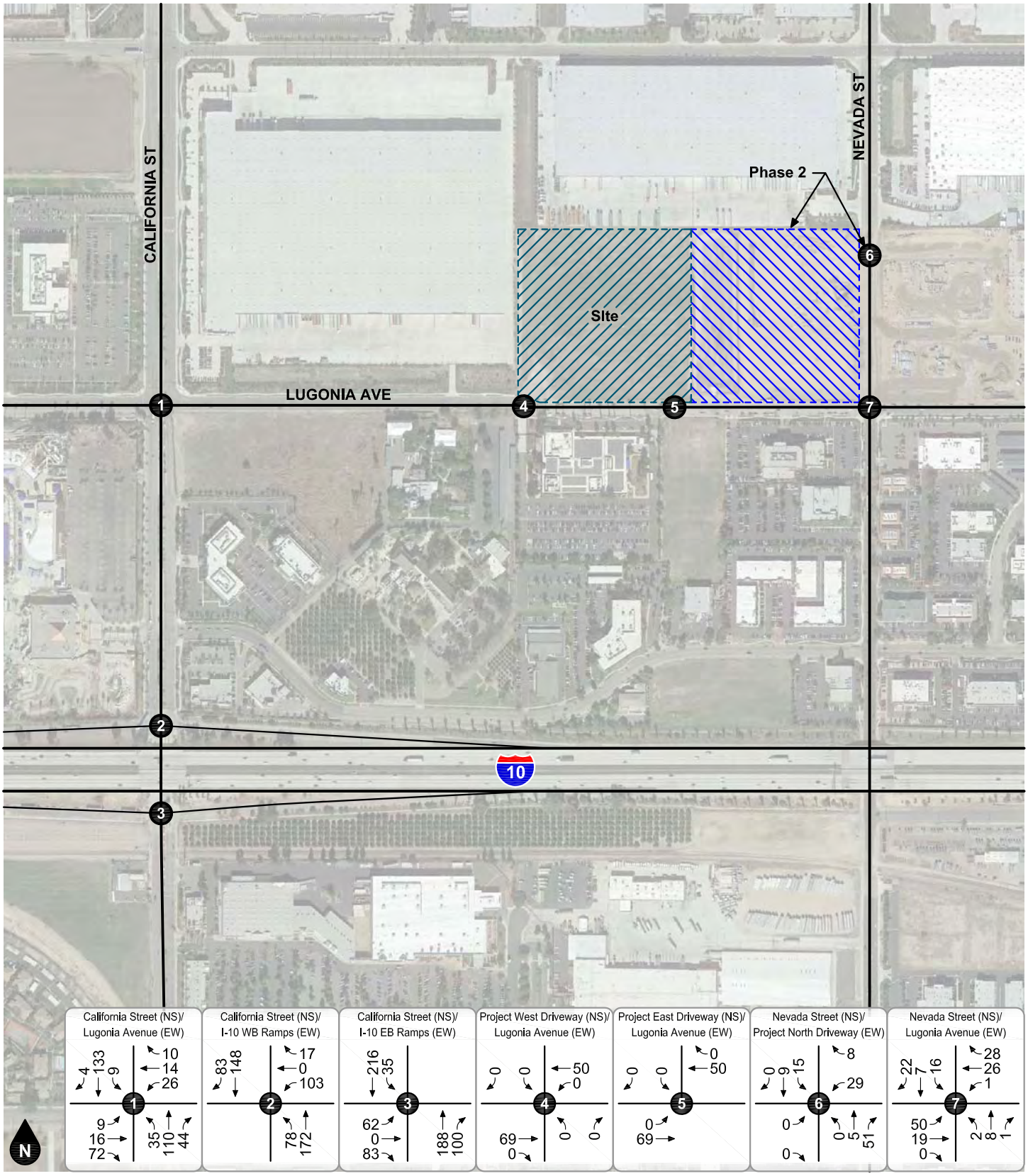
Figure 25
Other Development Average Daily Traffic Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

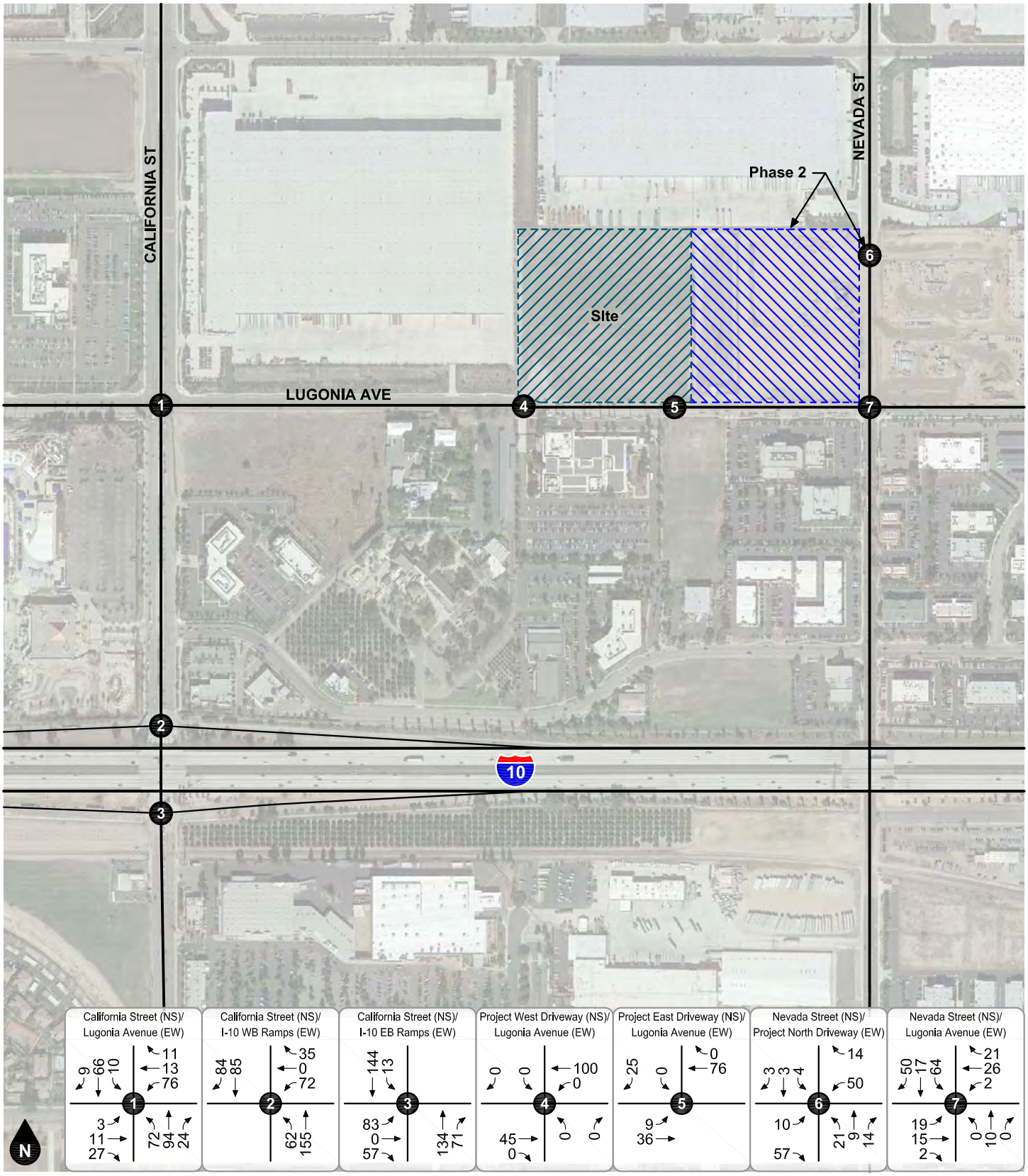
Figure 26
Other Development
AM Peak Hour Intersection Turning Movement Volumes - Opening Year (2020)



Legend

- # Study Intersection
- Site
- Adjacent Project

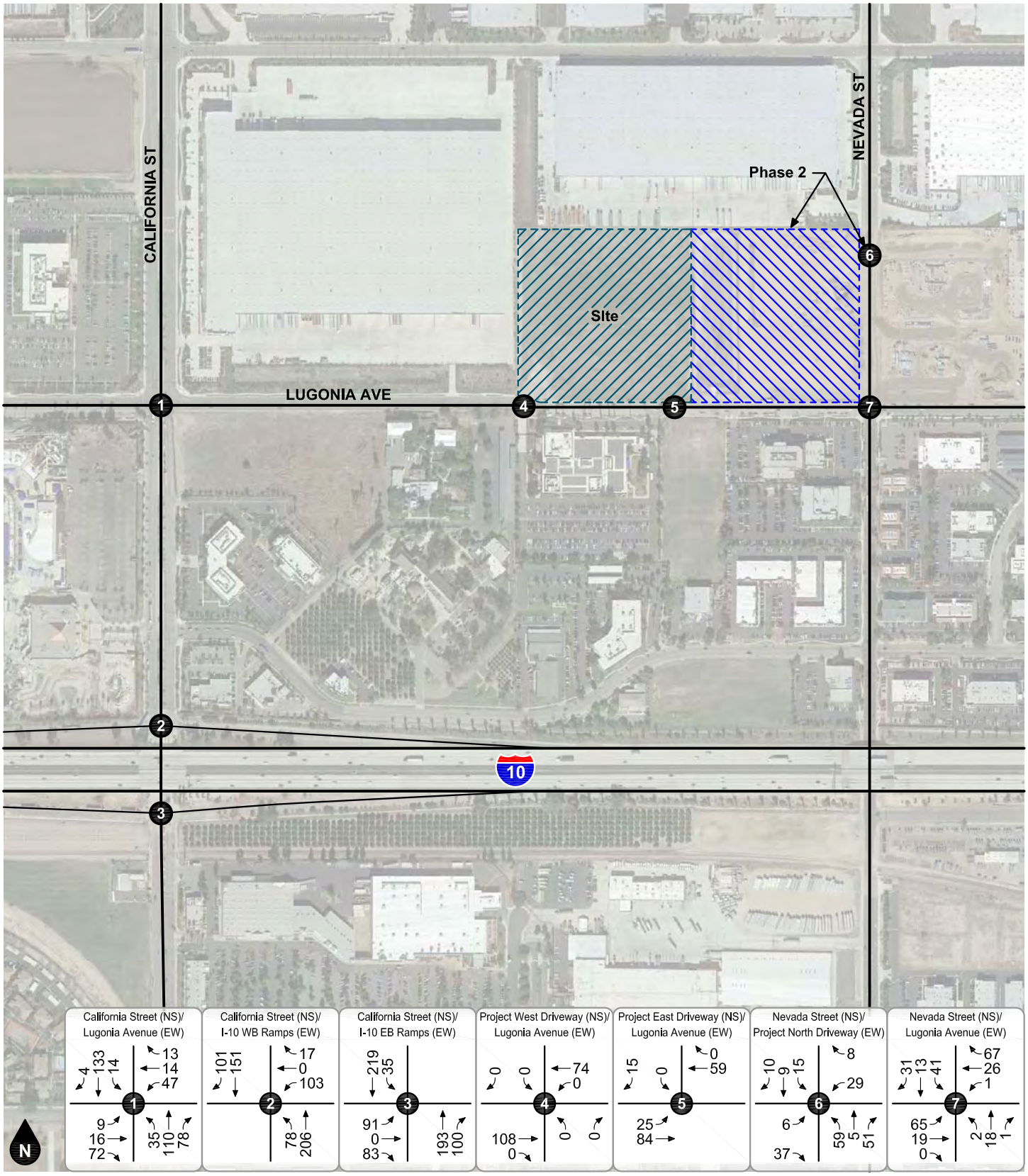
Figure 27
Other Development
PM Peak Hour Intersection Turning Movement Volumes - Opening Year (2020)



Legend

- # Study Intersection
- Site
- Adjacent Project

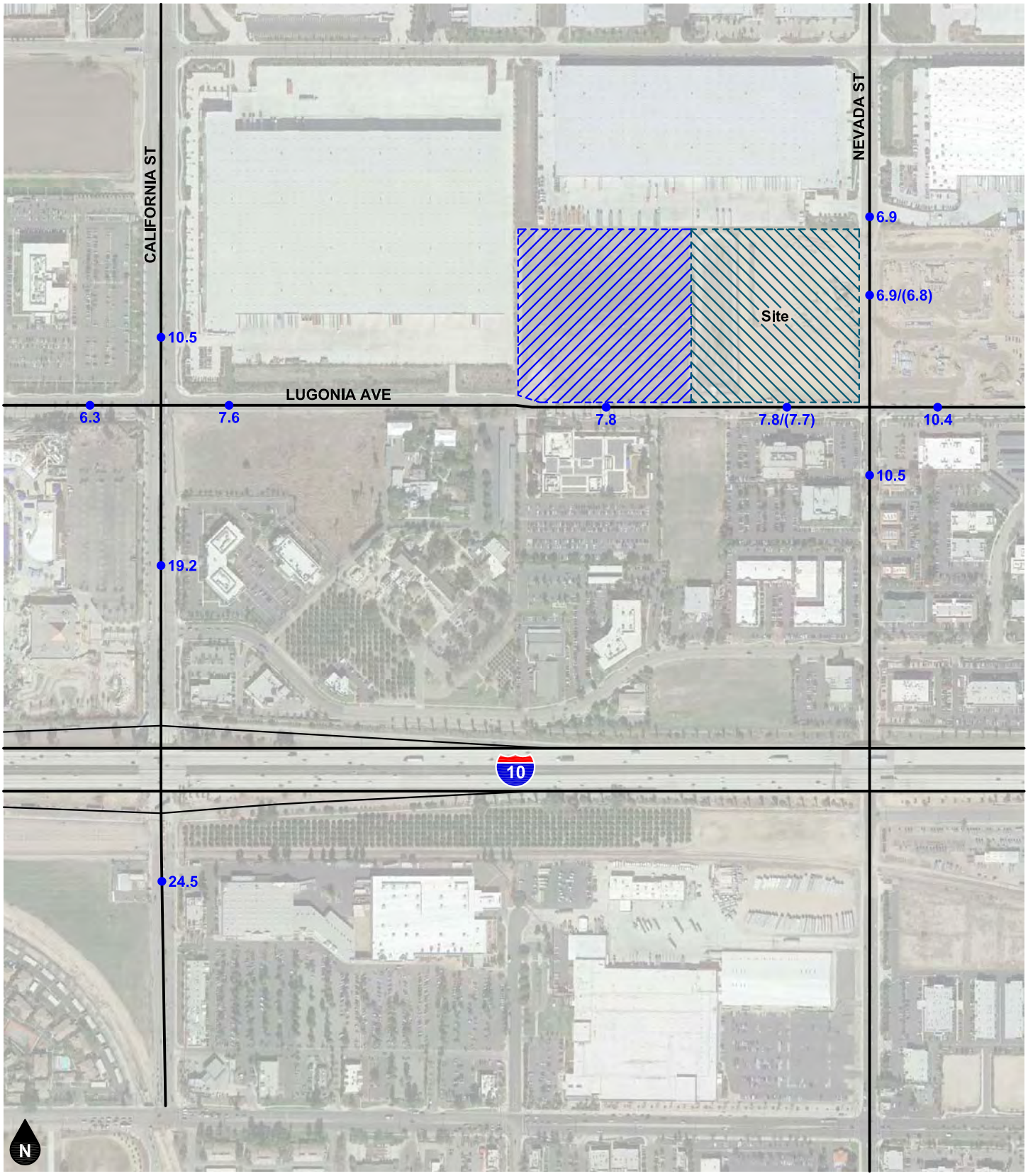
Figure 28
Other Development
AM Peak Hour Intersection Turning Movement Volumes - Year 2022



Legend

- # Study Intersection
- Site
- Adjacent Project

Figure 29
Other Development
PM Peak Hour Intersection Turning Movement Volumes - Year 2022

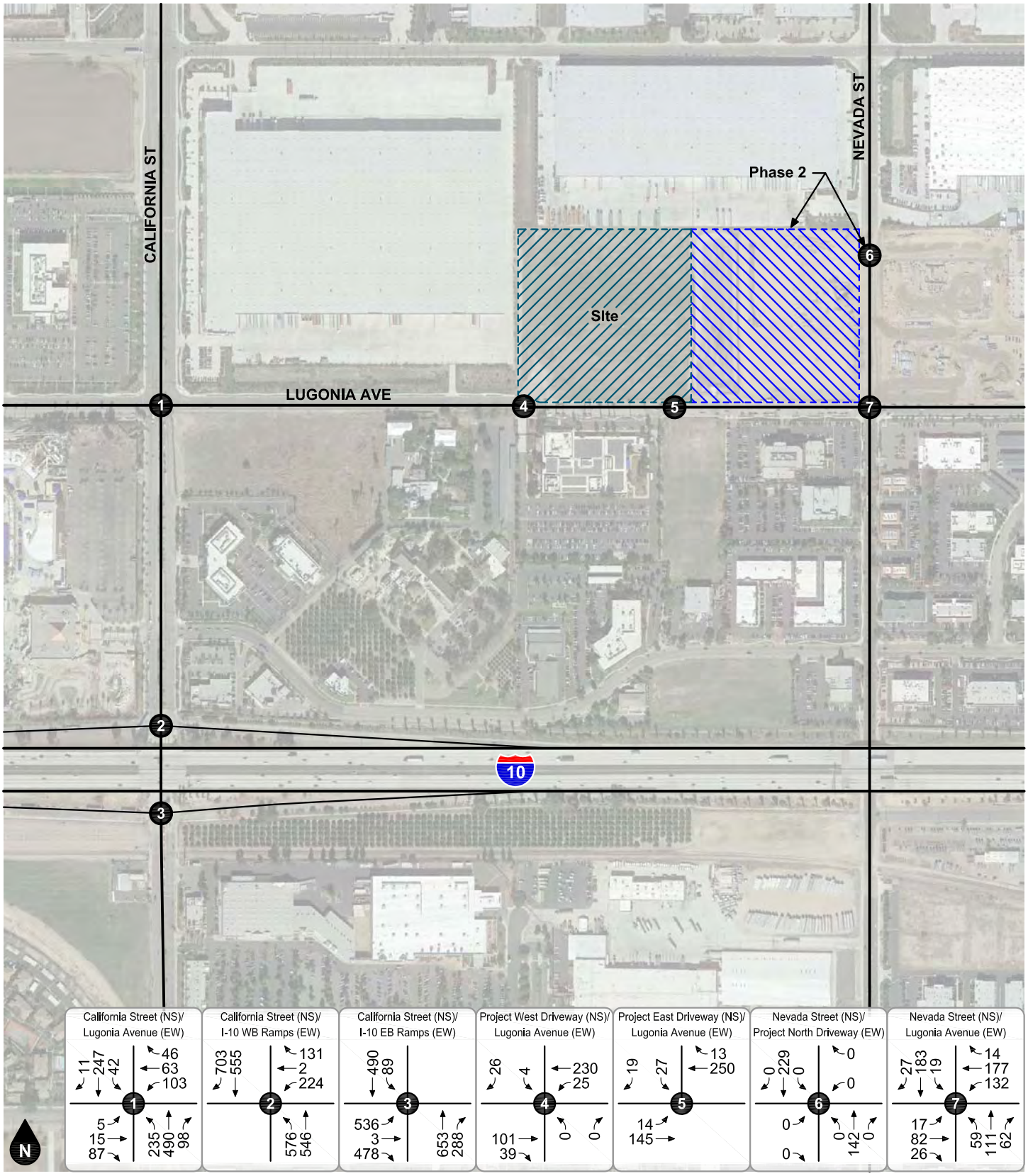


Legend

●## Vehicles Per Day (1,000's)

●##/(##) Phase 1 (Phase 2)

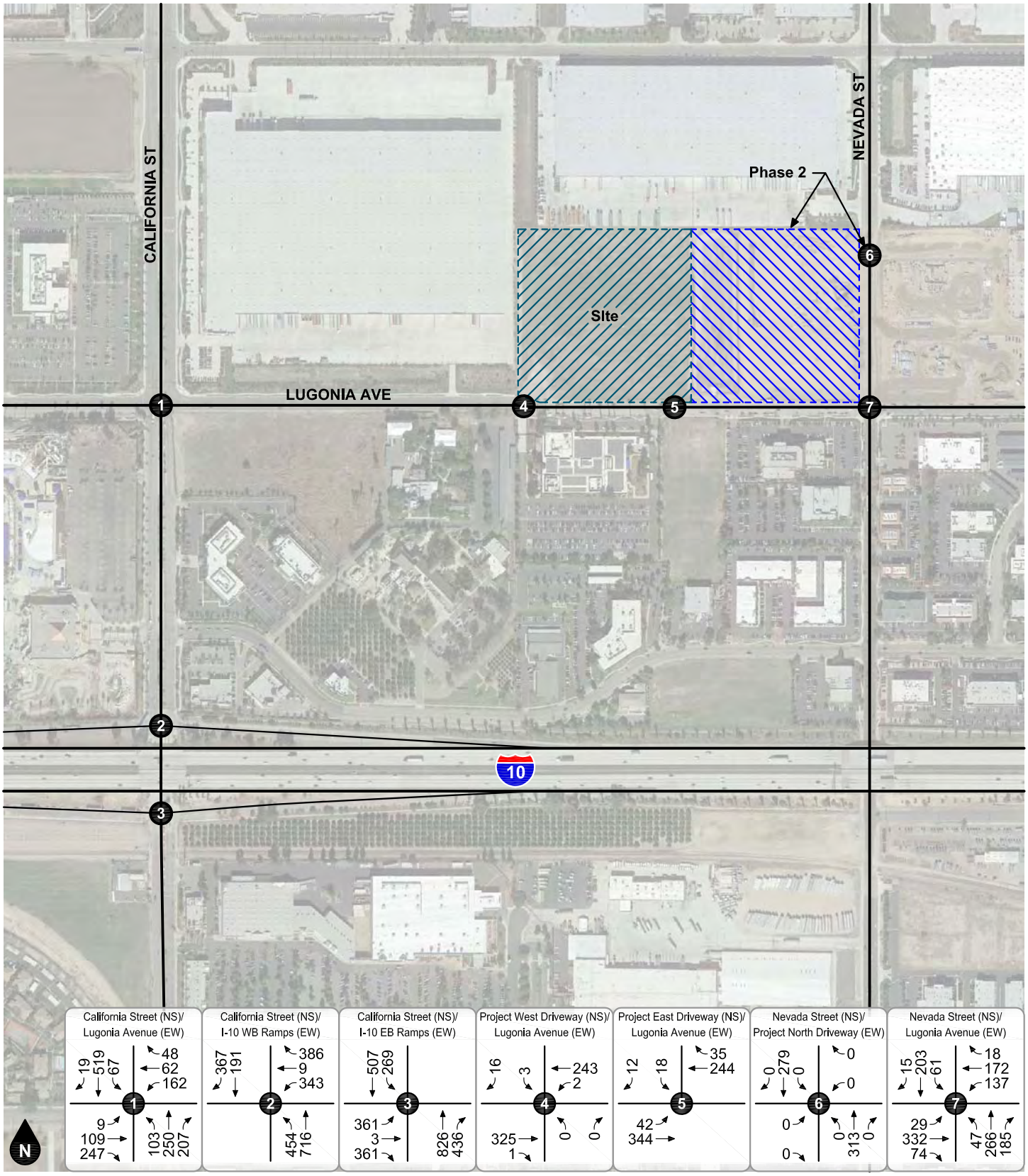
Figure 30
Existing Plus Project Average Daily Traffic Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

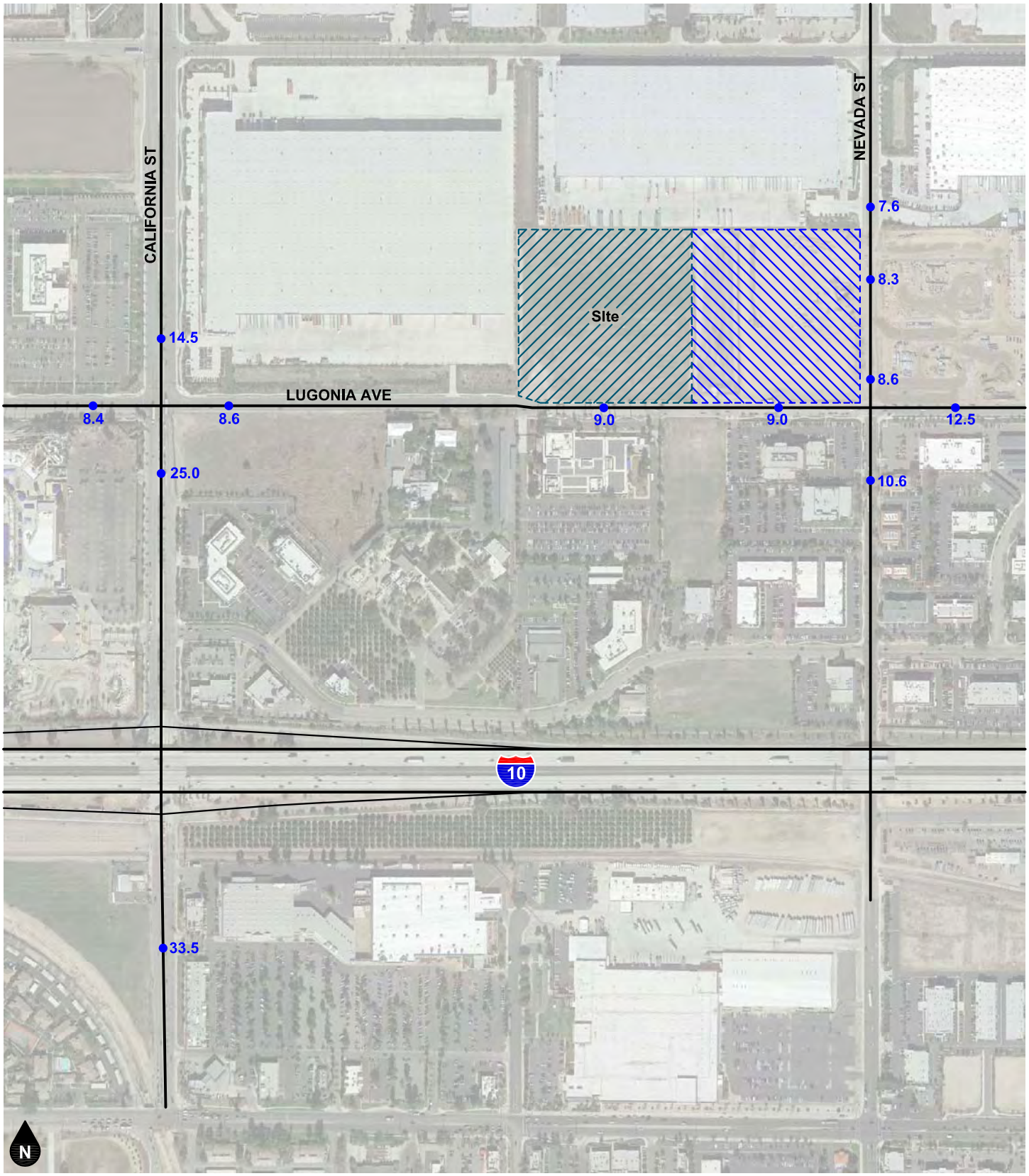
Figure 31
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

Figure 32
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes



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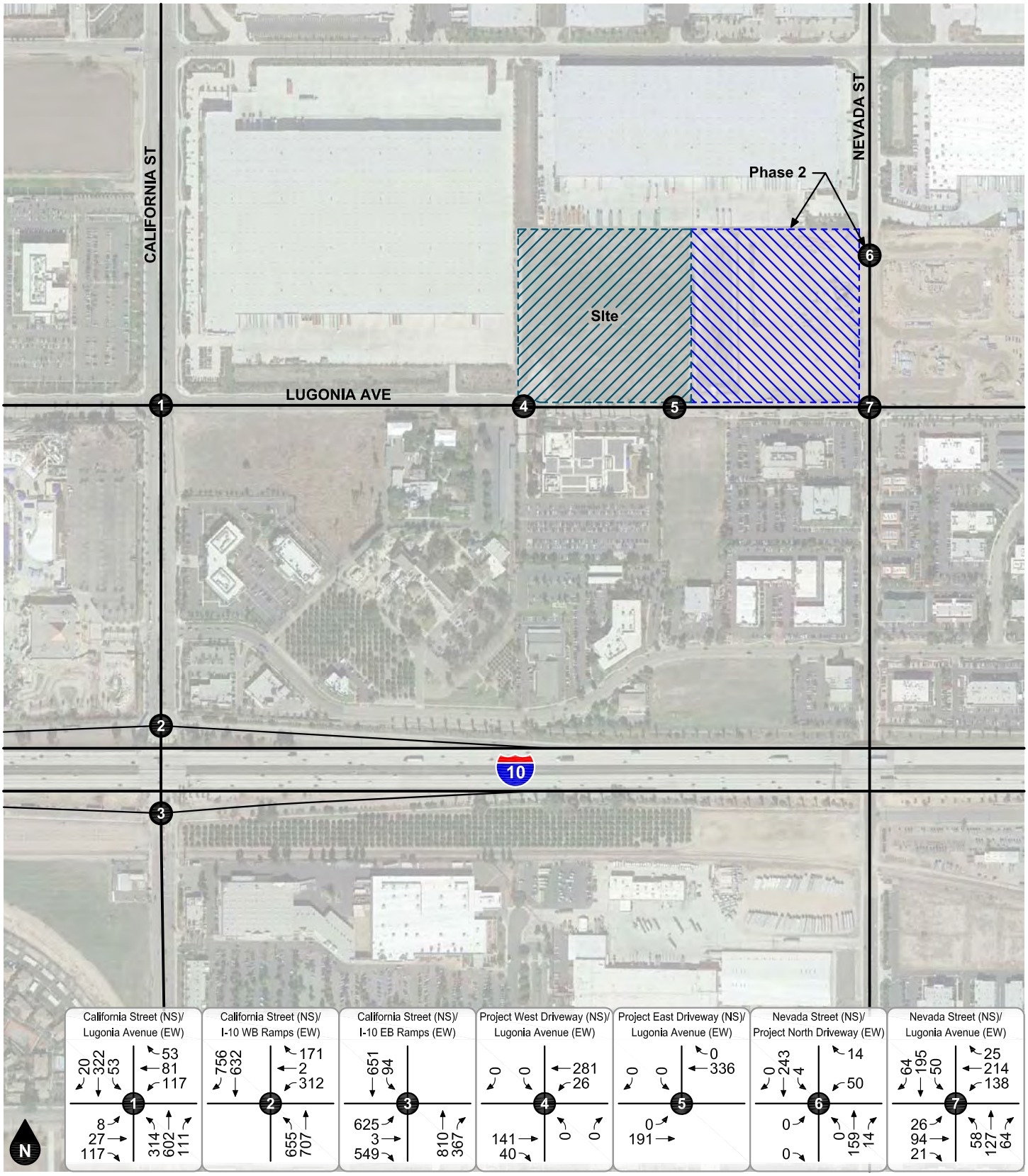
●## Vehicles Per Day (1,000's)

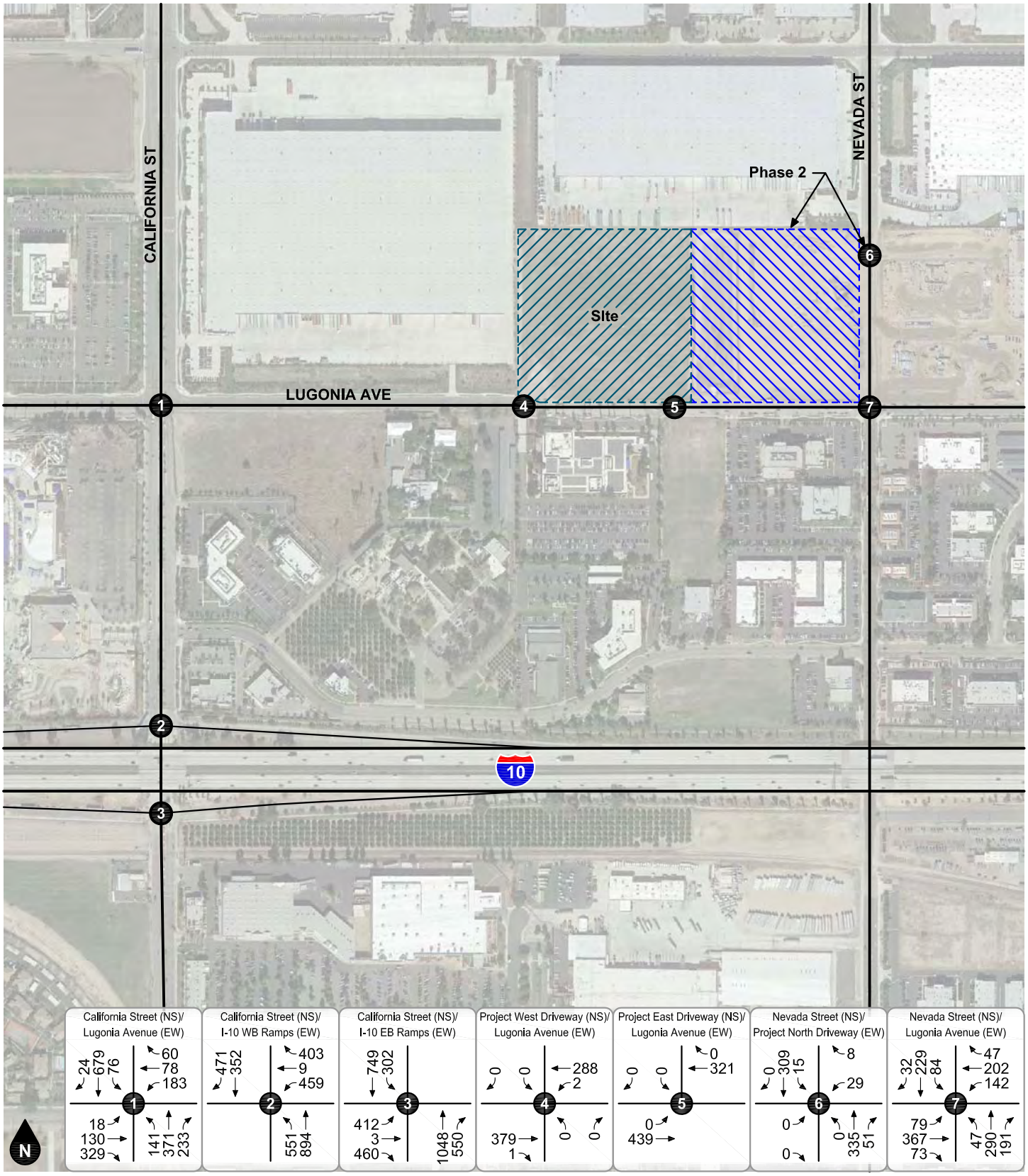
Figure 33
Opening Year (2020) Without Project
Average Daily Traffic Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

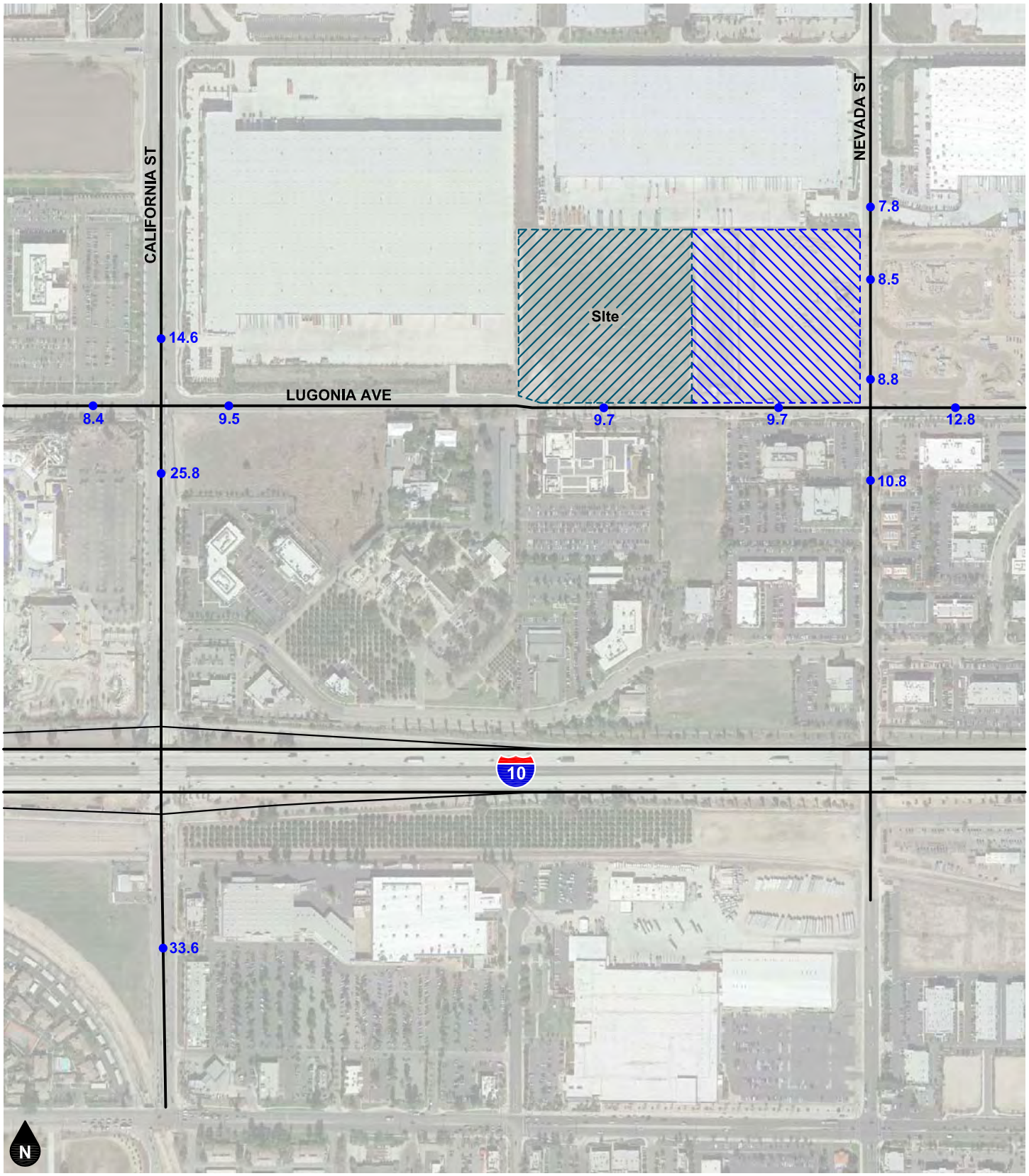
Figure 34
Opening Year (2020) Without Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

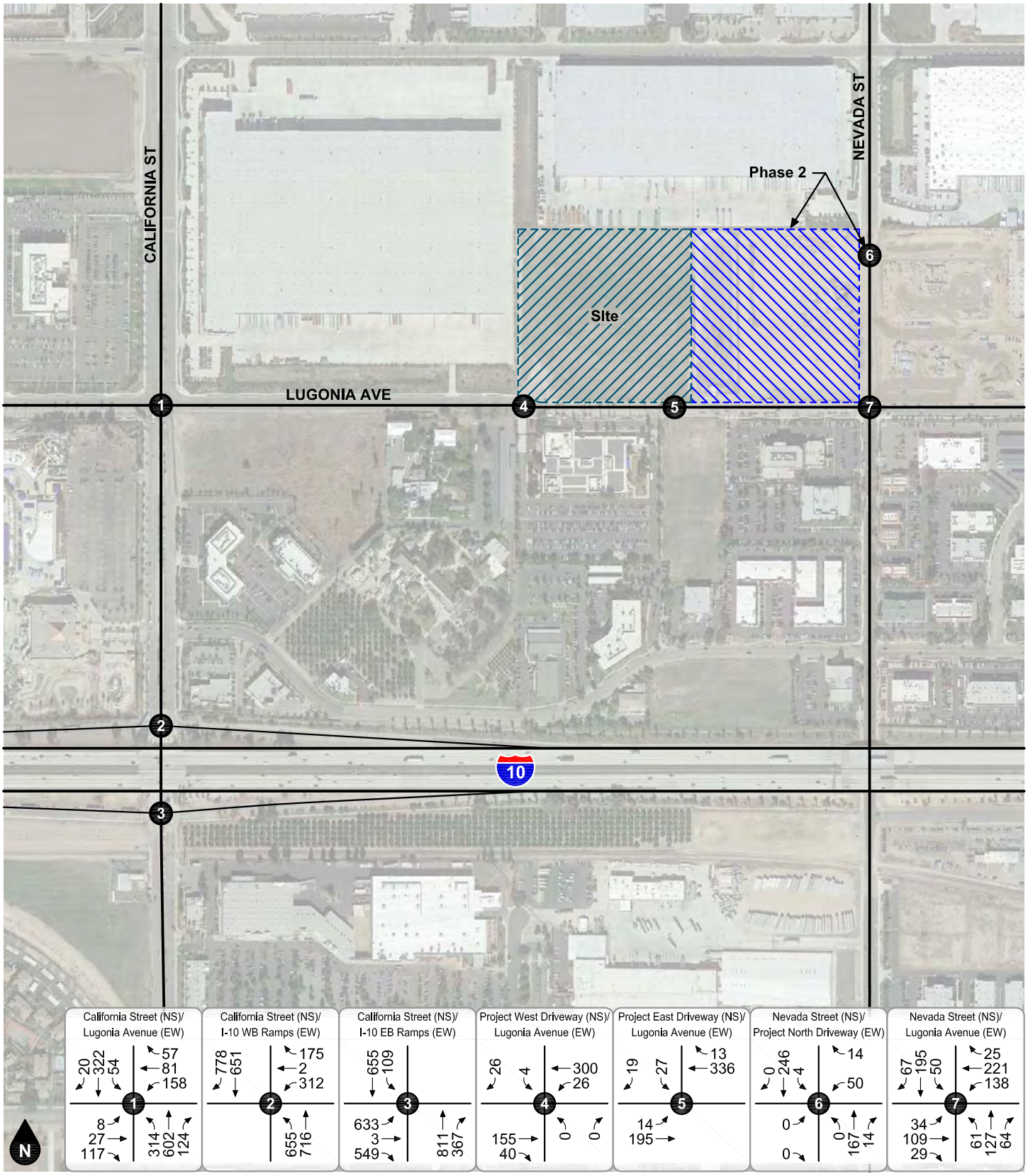
Figure 35
Opening Year (2020) Without Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 36
Opening Year (2020) With Project
Average Daily Traffic Volumes



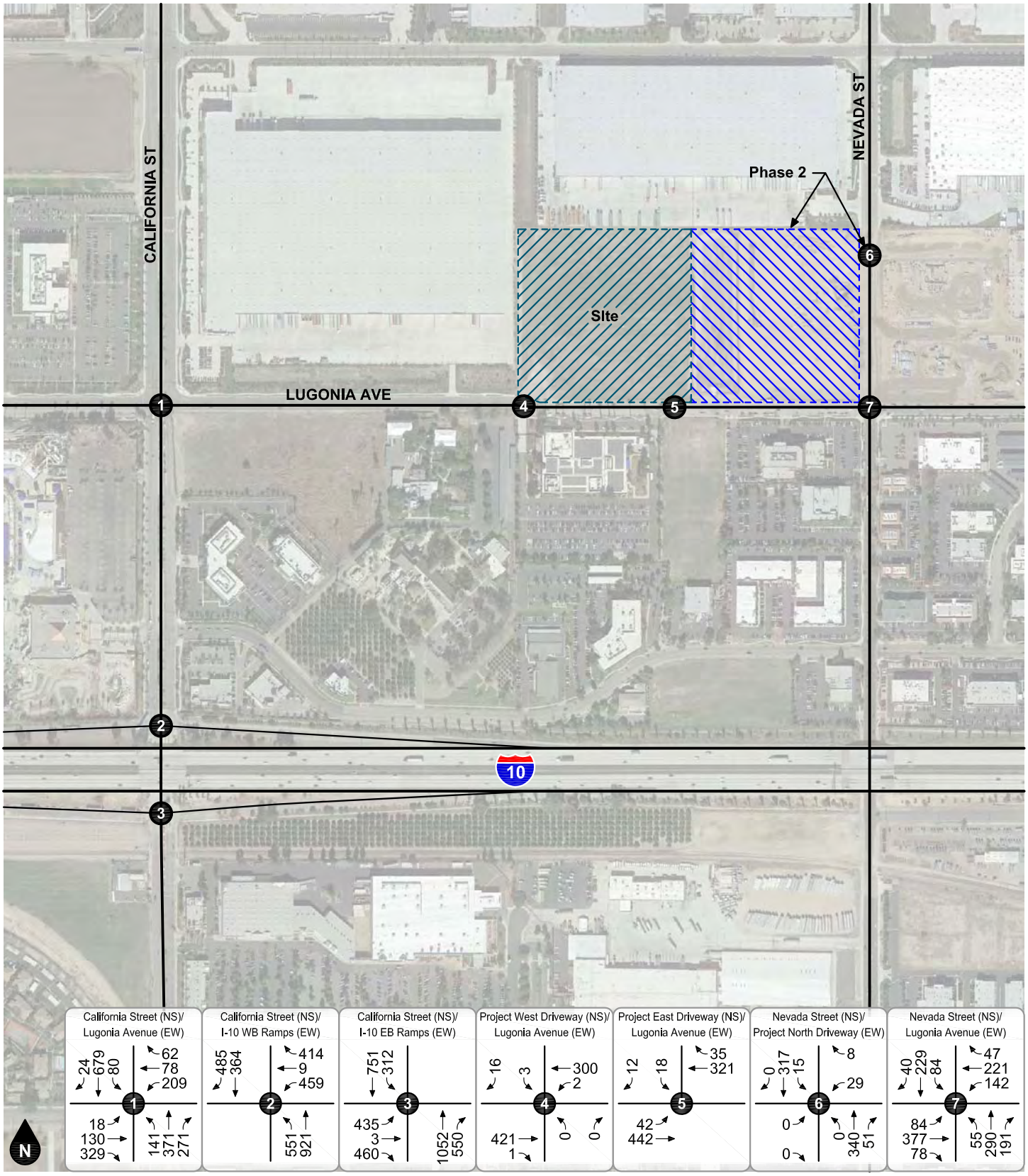
Legend

Study Intersection

Site

Adjacent Project

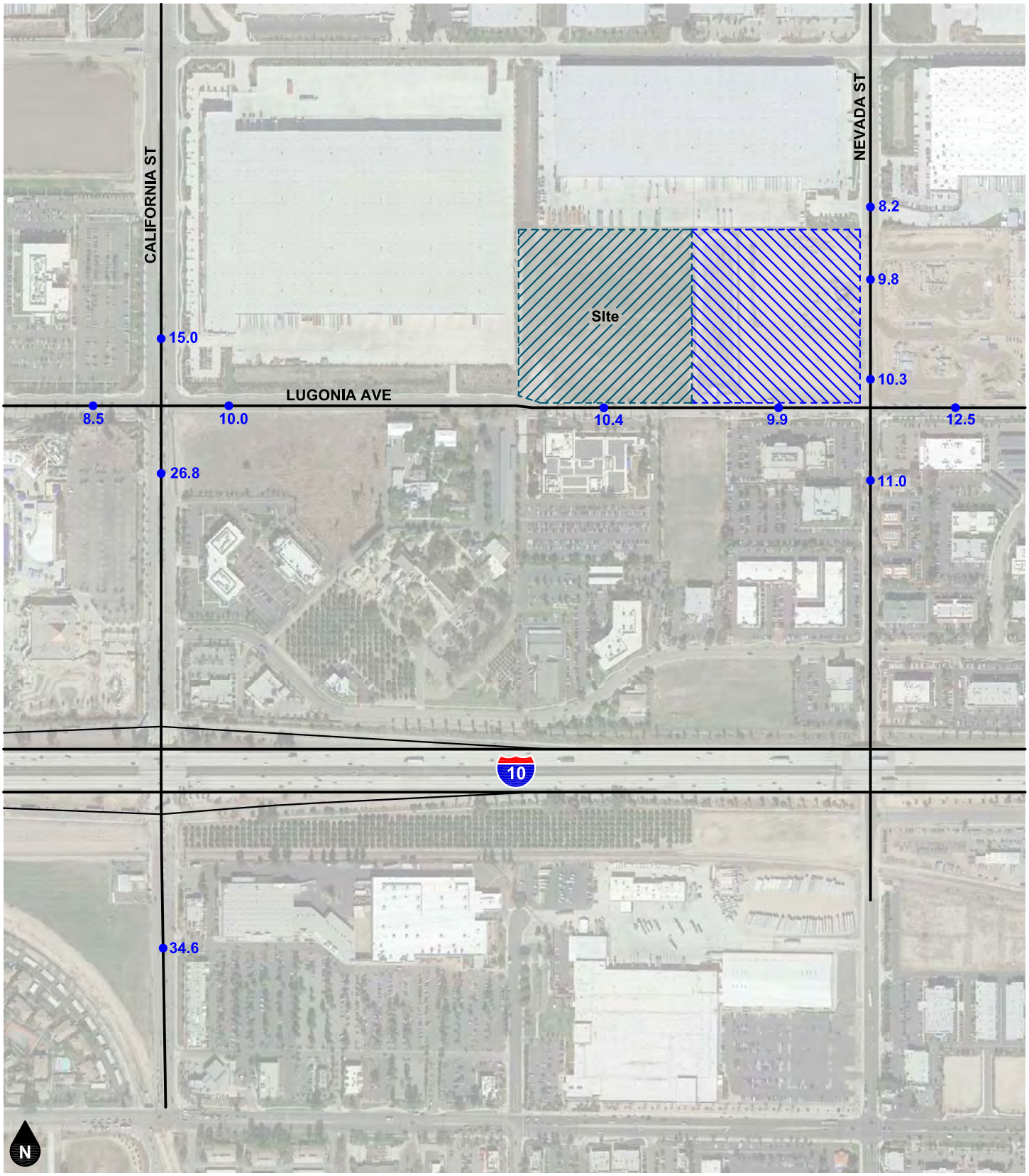
Figure 37
Opening Year (2020) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

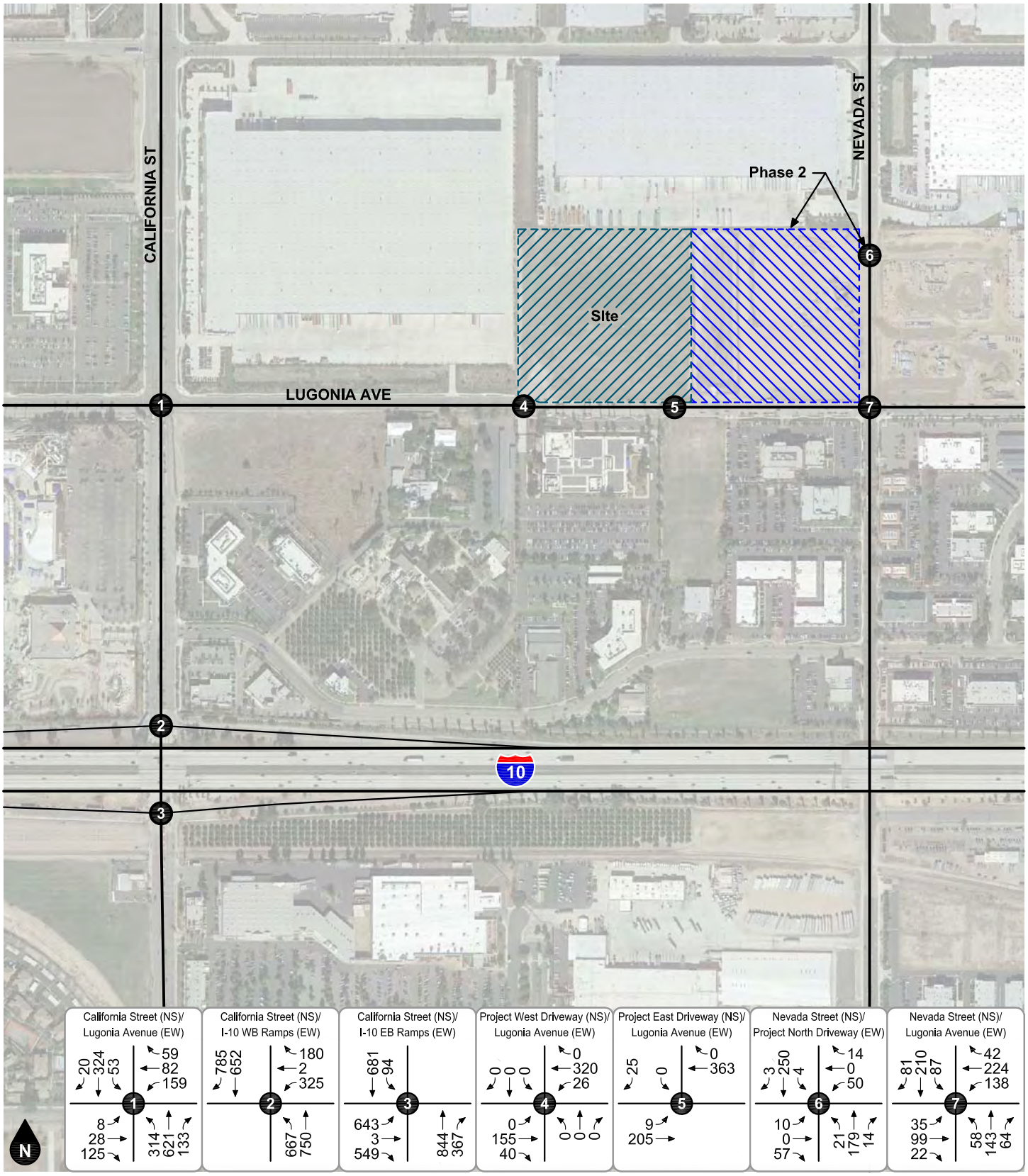
Figure 38
Opening Year (2020) With Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

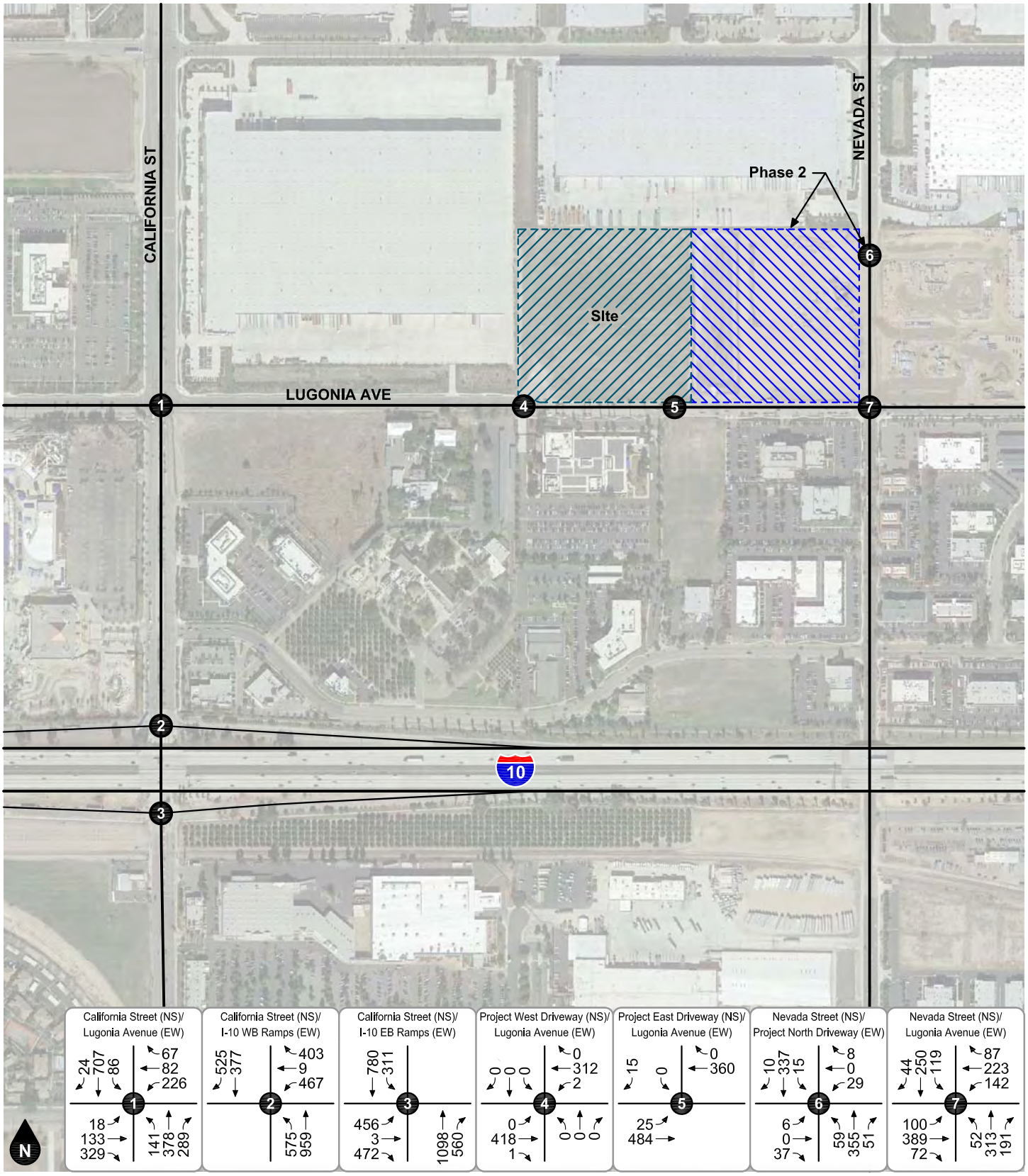
Figure 39
Year 2022 Without Project
Average Daily Traffic Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

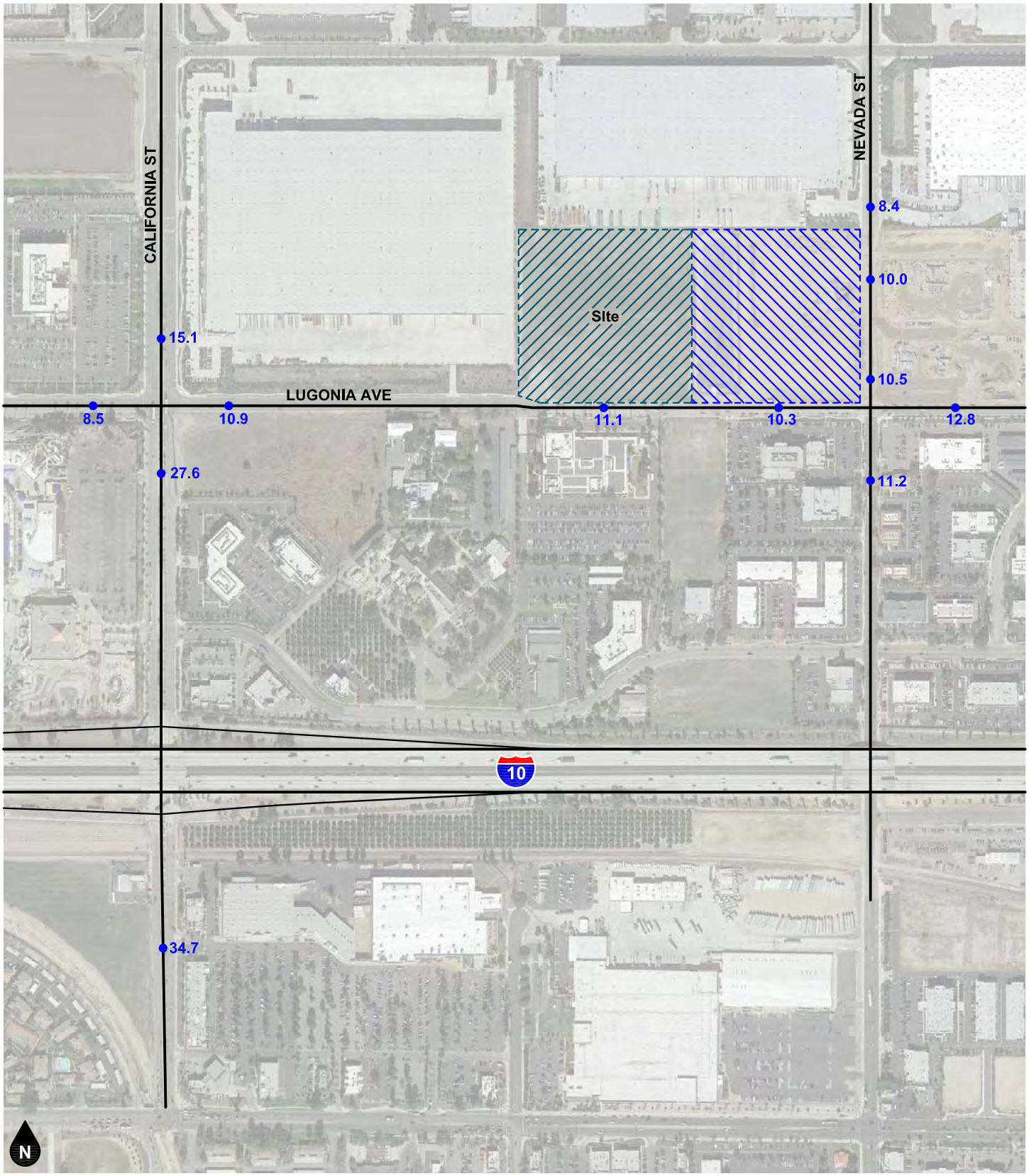
Figure 40
Year 2022 Without Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

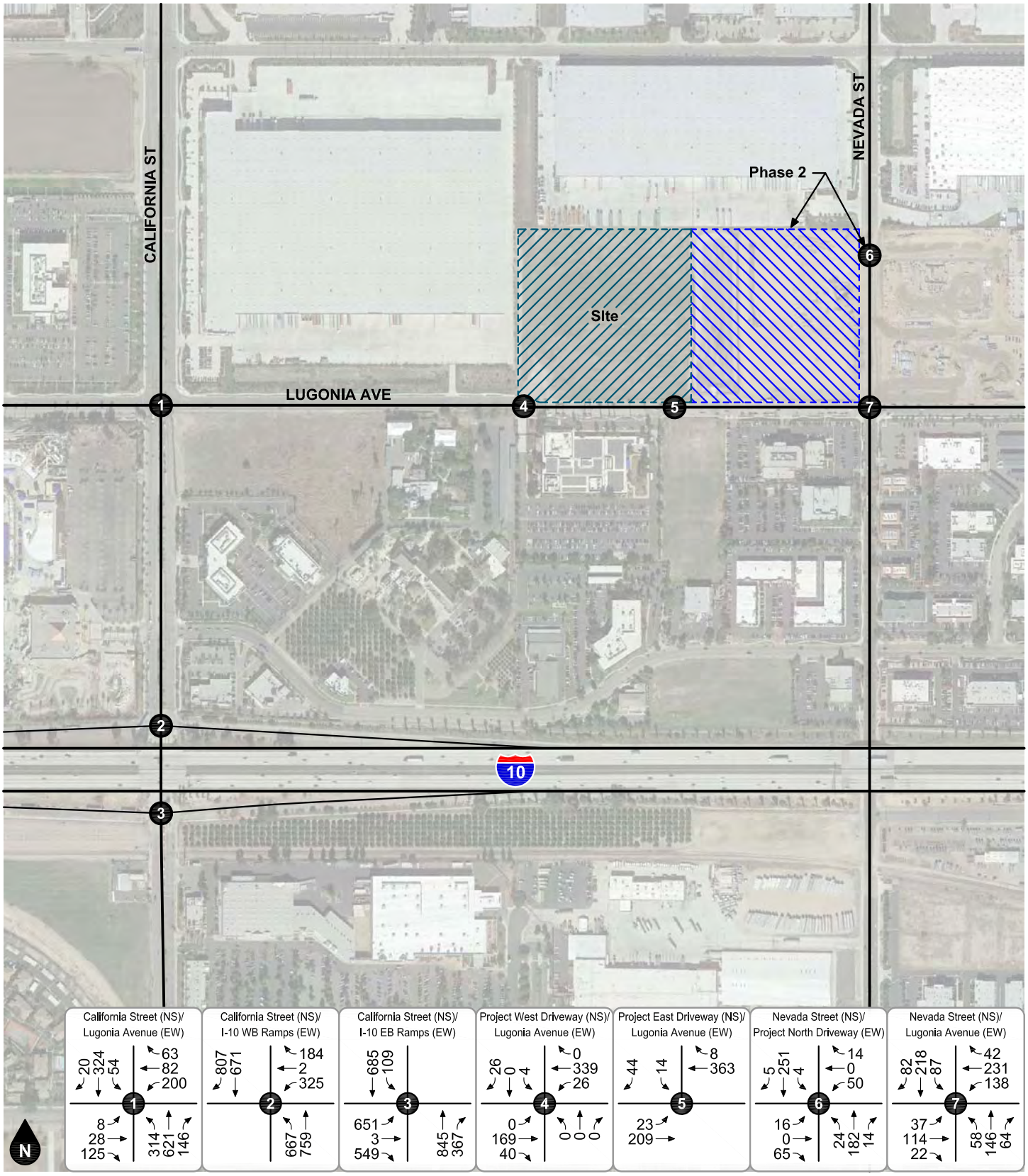
Figure 41
Year 2022 Without Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

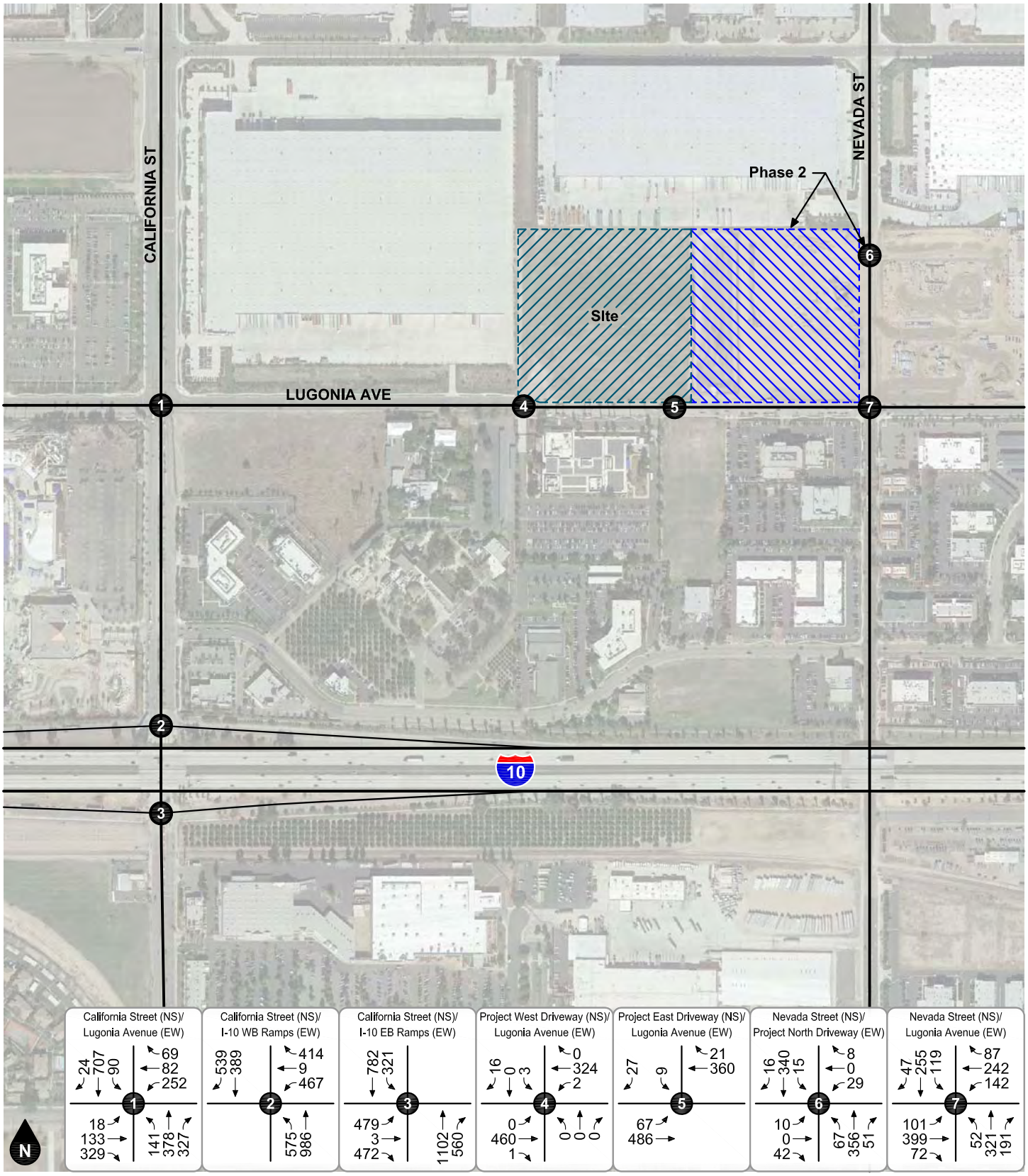
Figure 42
Year 2022 With Project (With Reciprocal Access)
Average Daily Traffic Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

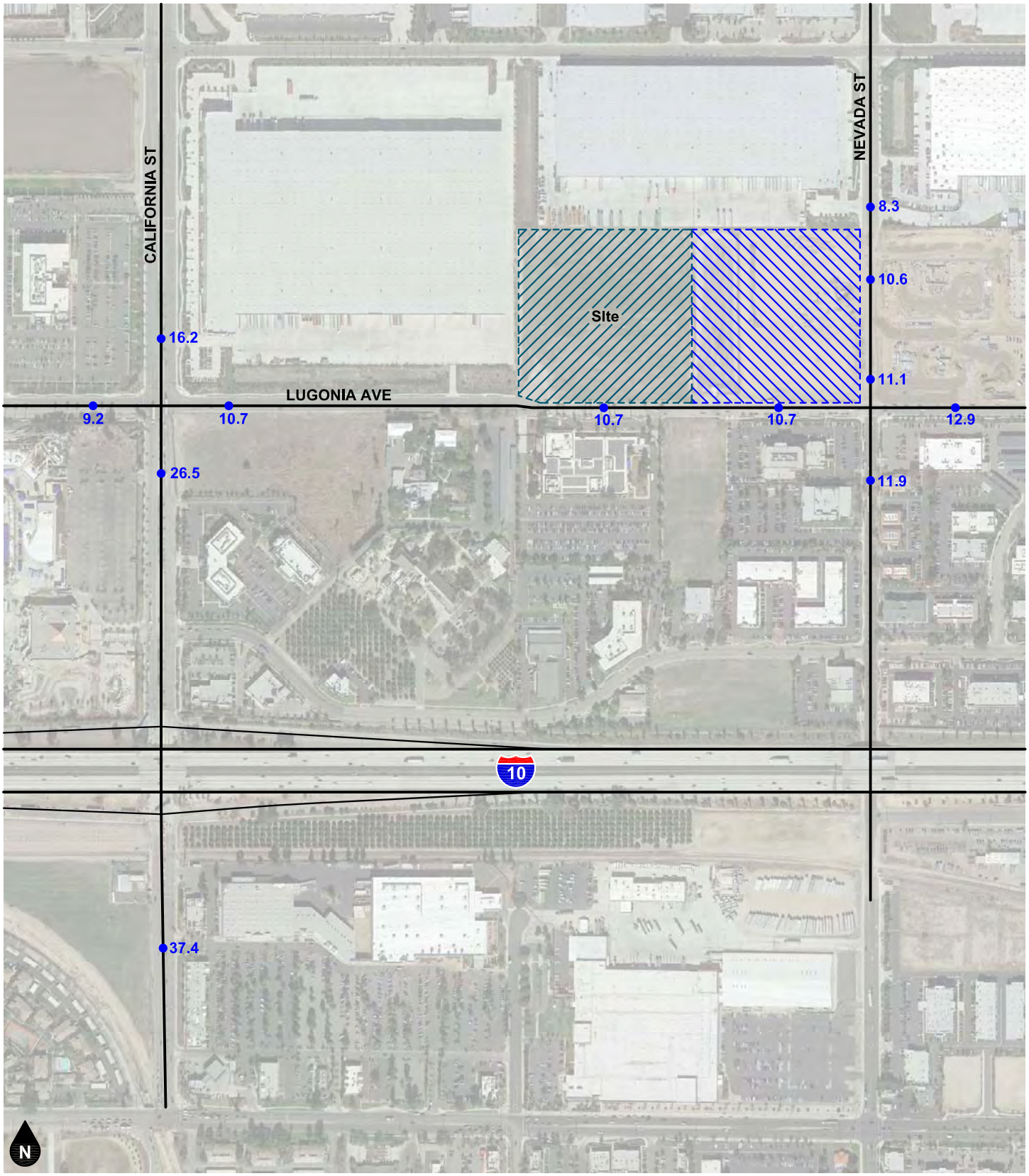
Figure 43
Year 2022 With Project (With Reciprocal Access)
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

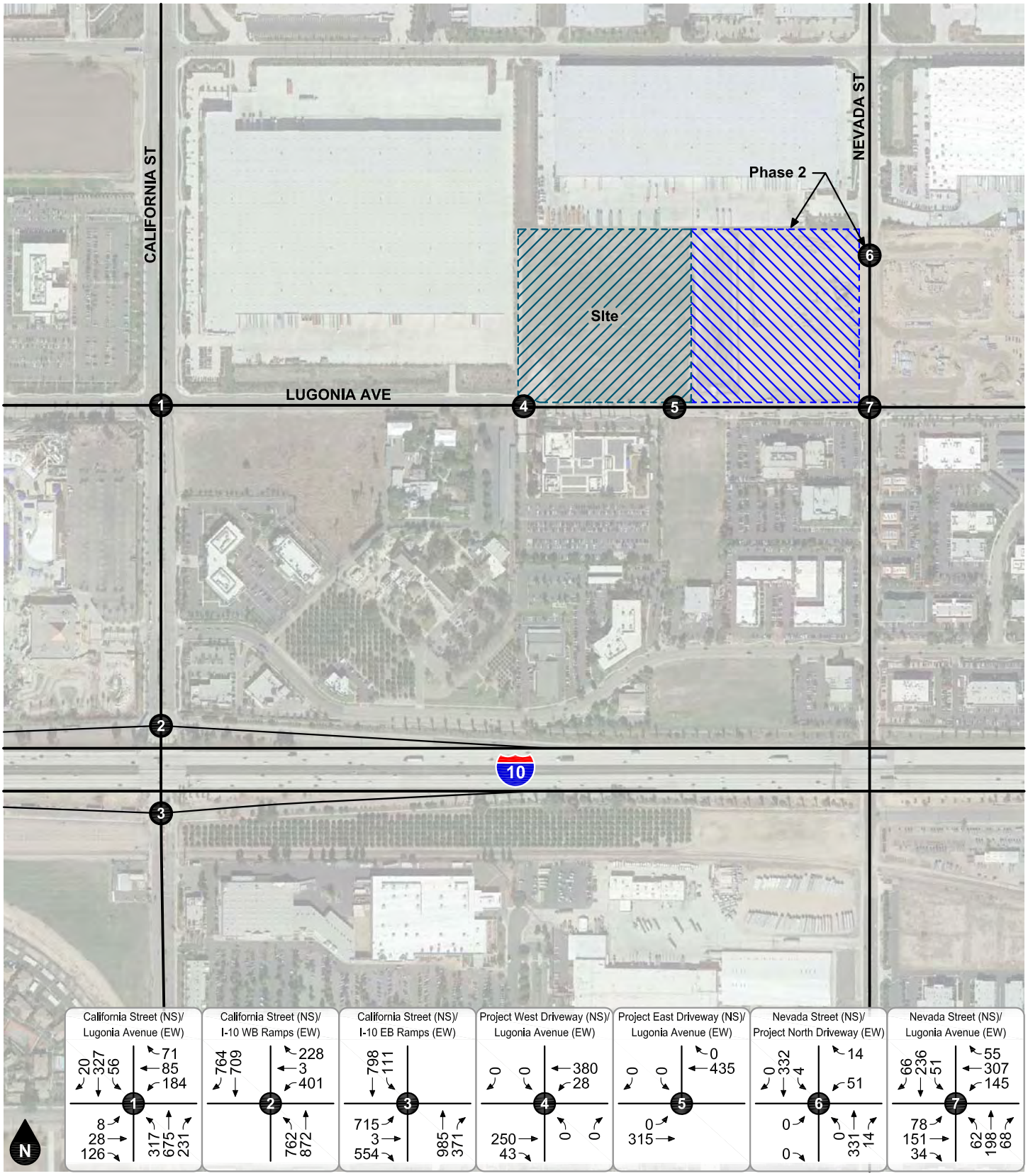
Figure 44
Year 2022 With Project (With Reciprocal Access)
PM Peak Hour Intersection Turning Movement Volumes



Legend

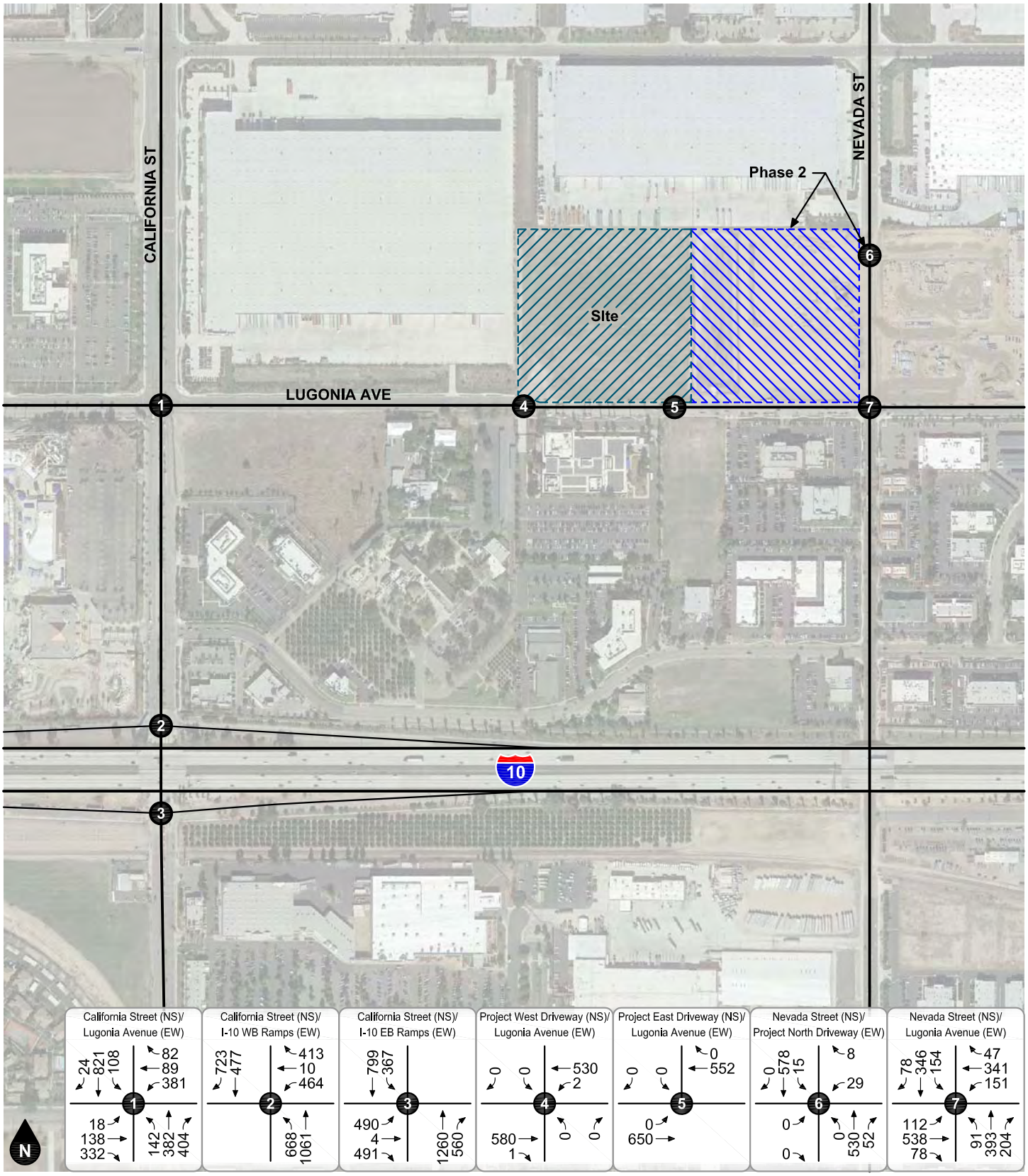
●## Vehicles Per Day (1,000's)

Figure 45
General Plan Buildout (Year 2040) Without Project
Average Daily Traffic Volumes



Legend
- # Study Intersection
- Site
- Adjacent Project

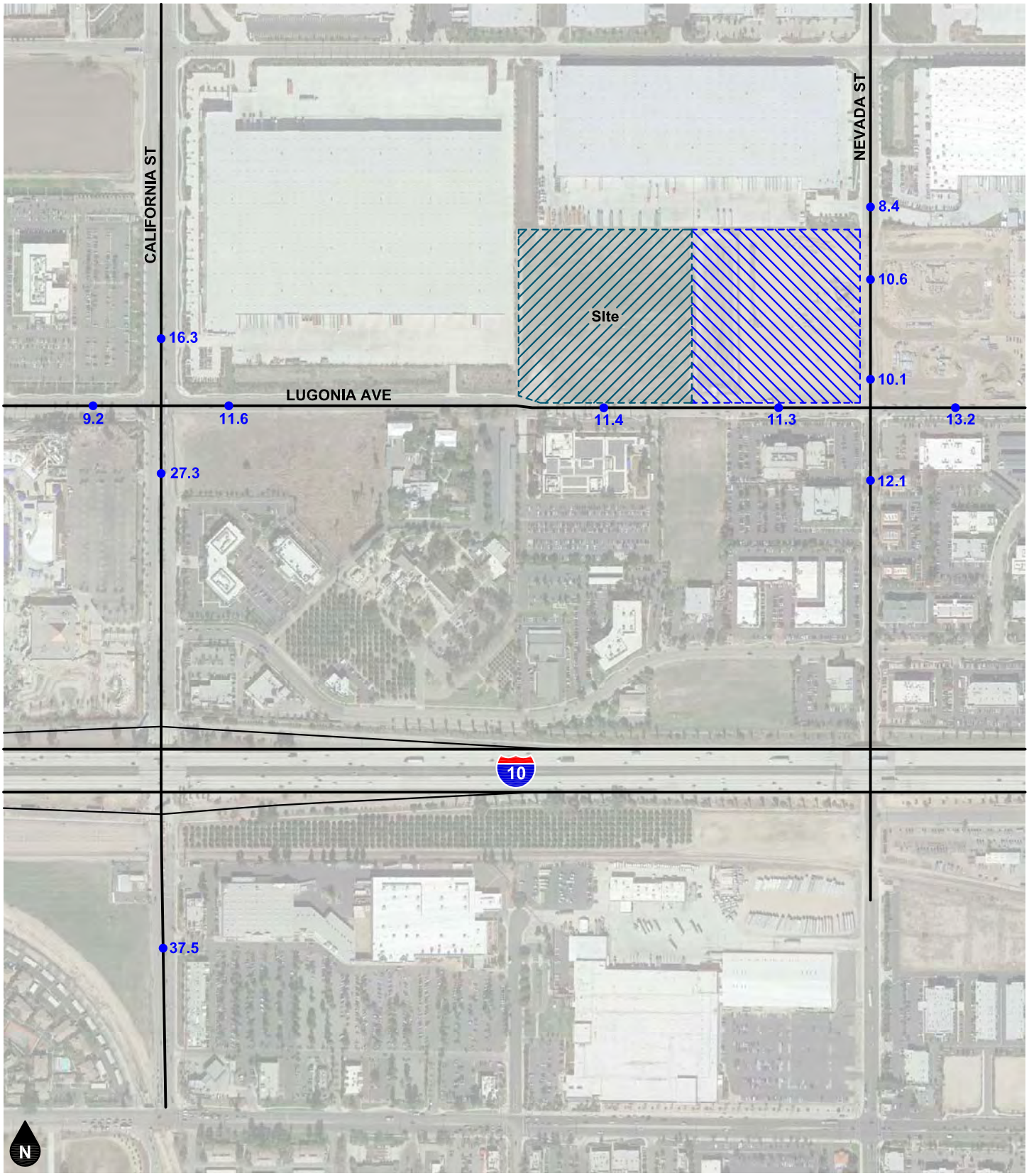
Figure 46
General Plan Buildout (Year 2040) Without Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

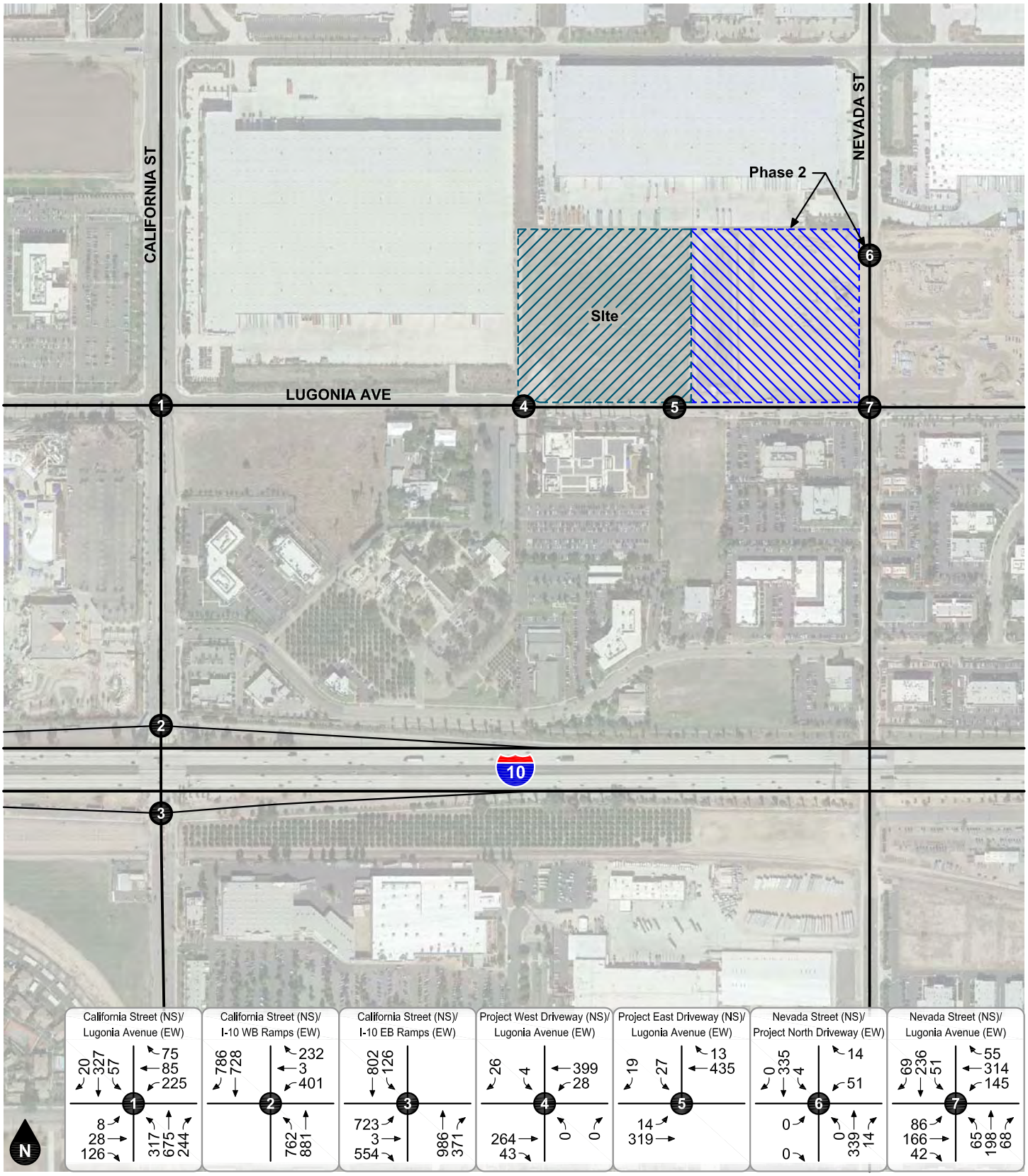
Figure 47
General Plan Buildout (Year 2040) Without Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 48
General Plan Buildout (Year 2040) With Project
Average Daily Traffic Volumes



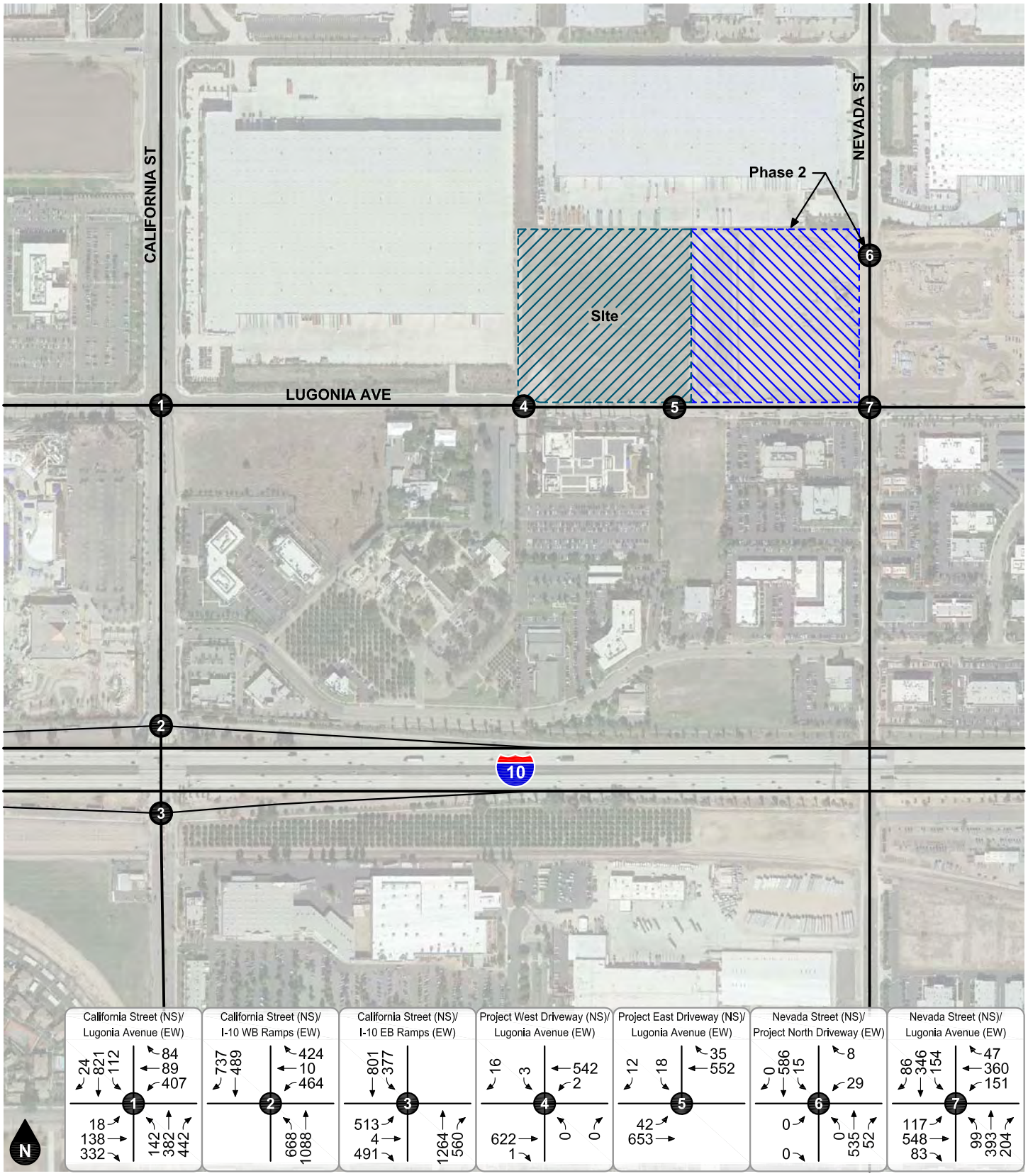
Legend

Study Intersection

Site

Adjacent Project

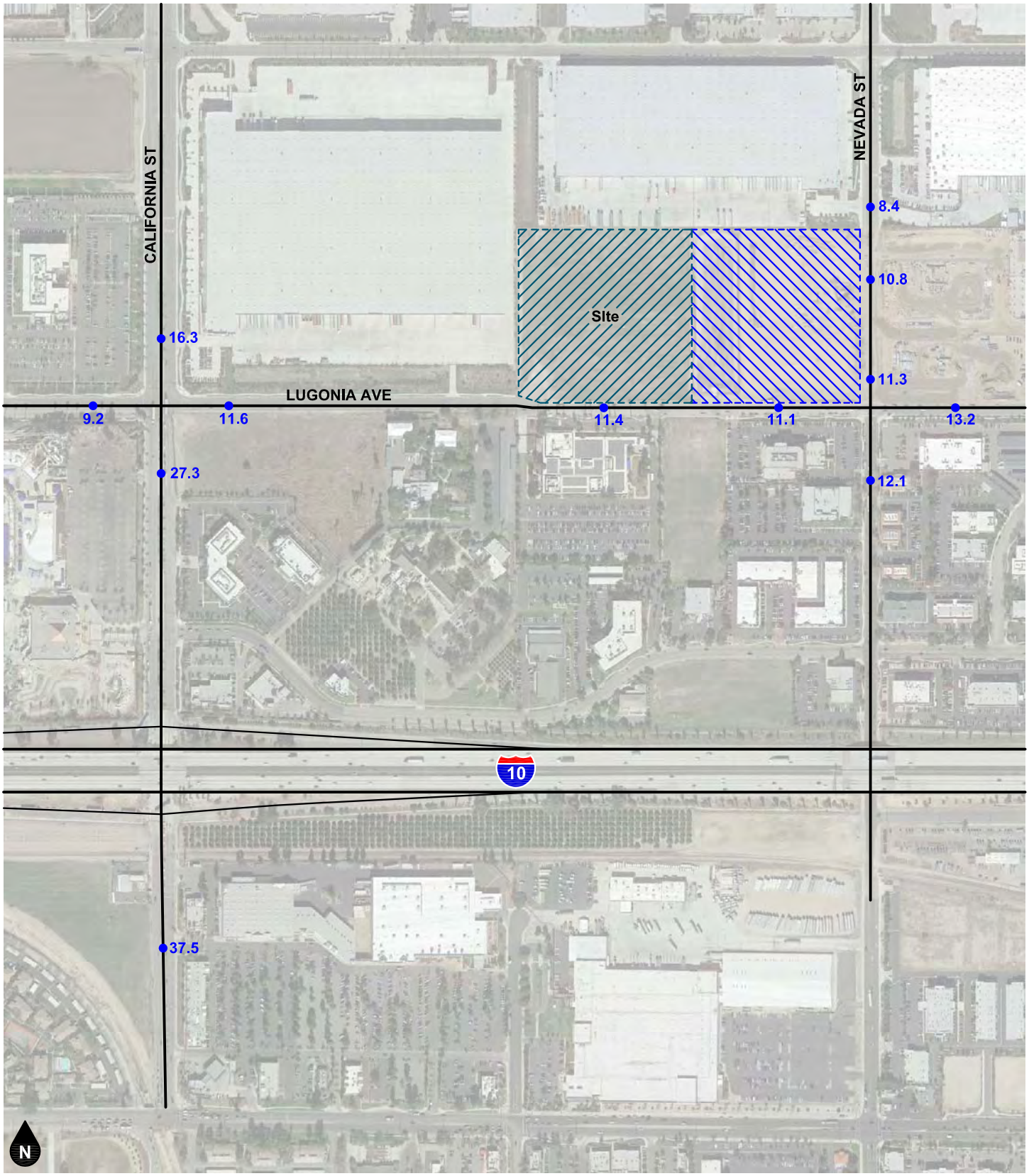
Figure 49
General Plan Buildout (Year 2040) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

- # Study Intersection
- Site
- Adjacent Project

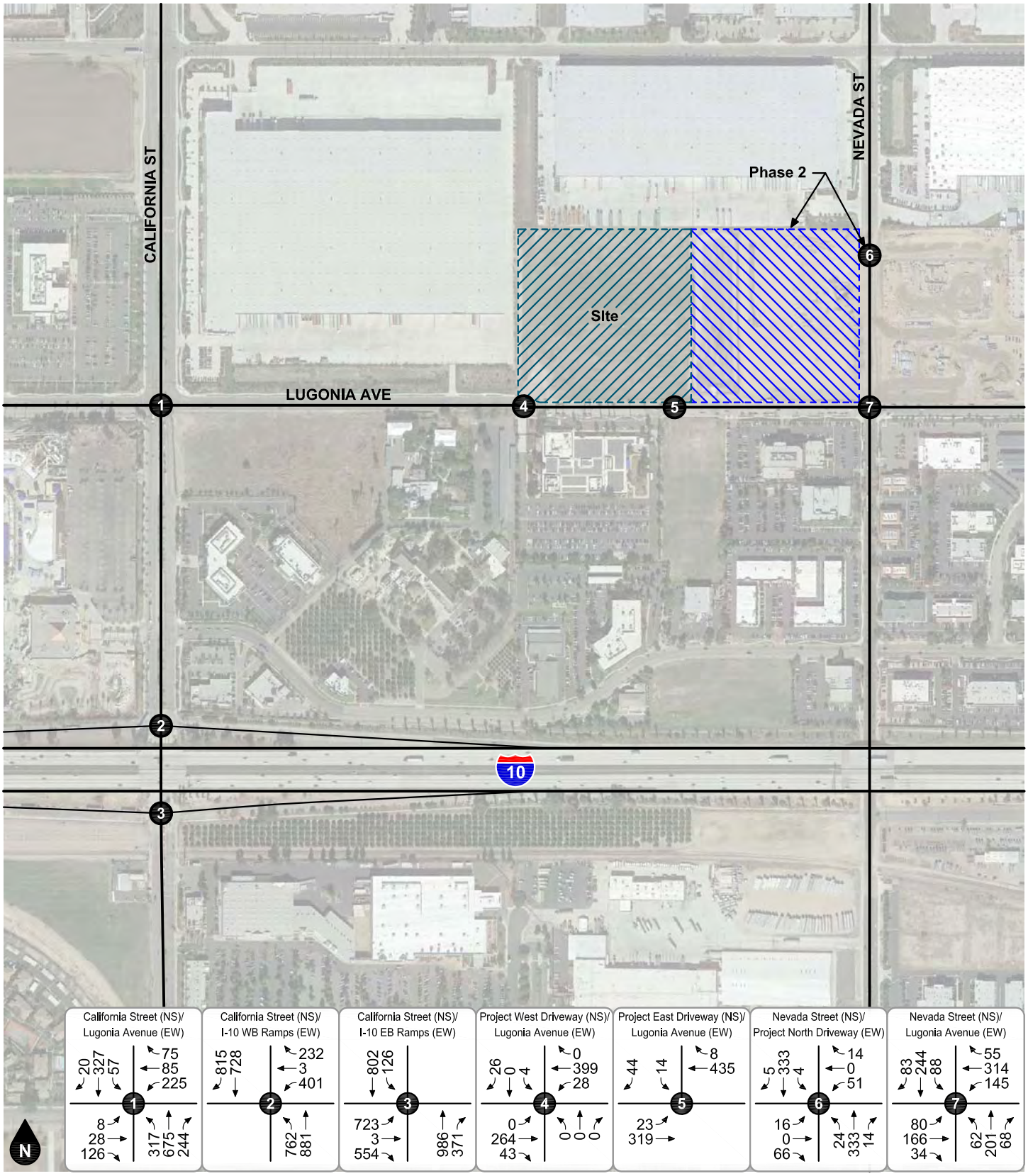
Figure 50
General Plan Buildout (Year 2040) With Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

Figure 51
General Plan Buildout (Year 2040) With Project With Reciprocal Access
Average Daily Traffic Volumes



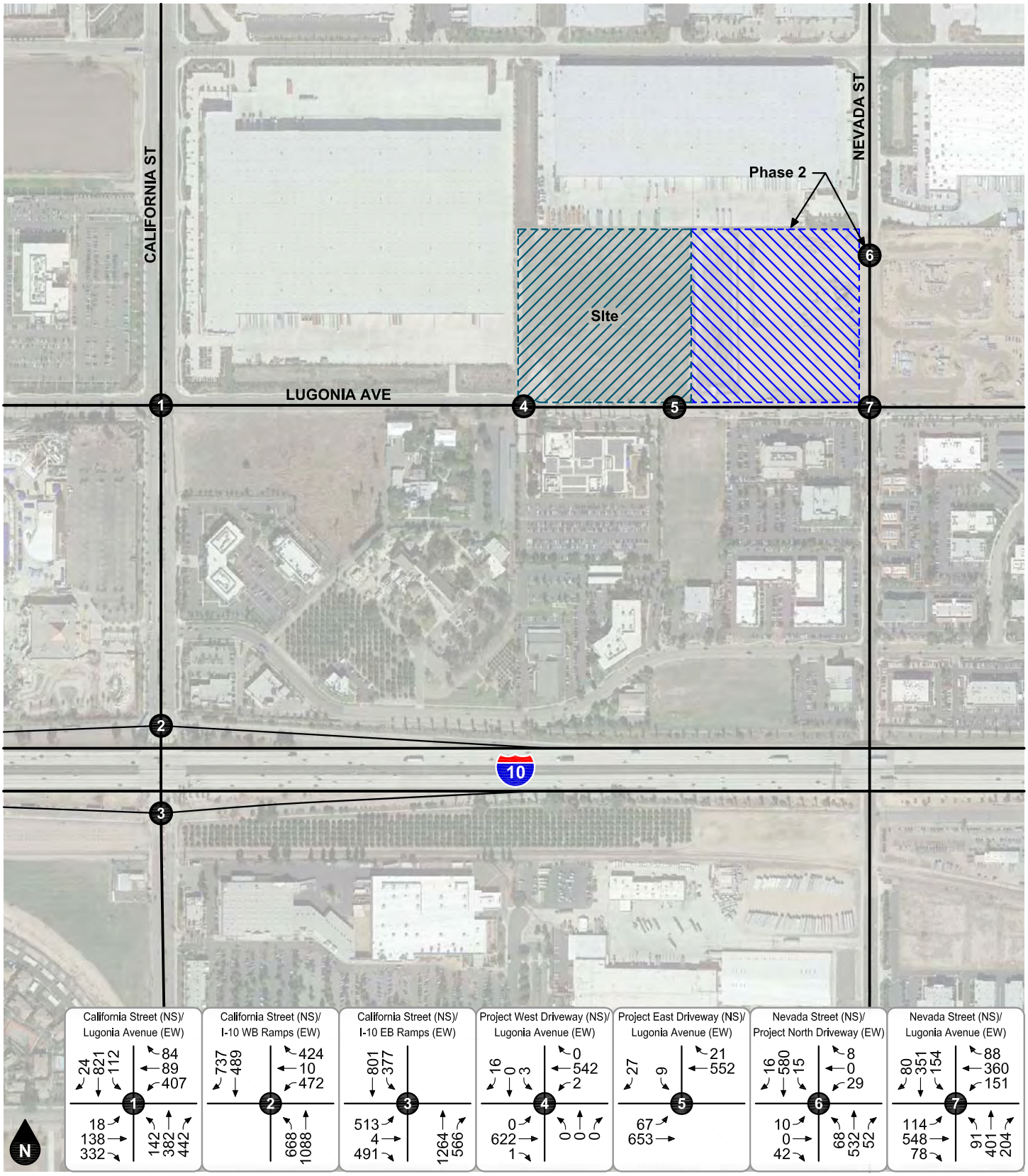
Legend

Study Intersection

Site

Adjacent Project

Figure 52
General Plan Buildout (Year 2040) With Project With Reciprocal Access
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Site

Adjacent Project

Figure 53
General Plan Buildout (Year 2040) With Project With Reciprocal Access
PM Peak Hour Intersection Turning Movement Volumes

6. FUTURE OPERATIONAL ANALYSIS

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix F.

MODIFIED NEVADA STREET AT LUGONIA AVENUE INTERSECTION

The Nevada Street at Lugonia Avenue intersection (Study Intersection #7) is scheduled for roadway improvements under development plans for the northeast corner of this intersection. As the project at the northeast corner of Nevada Street at Lugonia Avenue is currently under construction, the roadway improvement plan for this intersection has been used as the baseline lane geometry and intersection traffic control for this intersection for each of the following analysis scenarios. The approved Signing and Striping Plan for Lugonia Avenue is Appendix H.

EXISTING PLUS PROJECT

The study intersection Levels of Service for Existing Plus Project conditions are shown in Table 4. The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Existing Plus Project conditions, except for the following study intersection that is forecast to operate at unacceptable Levels of Service, without improvements (see Table 4):

- California Street at I-10 Westbound Ramps - #2 (AM peak hour) LOS E
- Nevada Street at Lugonia Avenue - #7 (PM peak hour) LOS D

The following improvements are recommended to maintain acceptable Levels of Service at the study intersections for Existing Plus Project traffic conditions:

- Nevada Street at Lugonia Avenue - #7
  - Install a traffic signal.
  - Construct one southbound left turn lane.
  - Construct one southbound right turn lane.
  - Restripe northbound shared left-through lane to 1-left turn lane and 1-through-right lane.
  - Restripe eastbound shared left-through lane to 1-left turn lane and 1-through with defacto right lane
  - Restripe westbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane

The necessary improvements to bring the intersection (California Street at I-10 Westbound Ramps - #2) operations back to an acceptable Level of Service have been identified in the County of San Bernardino Nexus Program. Furthermore, since the intersection is currently deficient, the project impact is considered to be indirect/cumulative. Therefore, as mitigation for the project share of the impact, the project shall contribute its share of the cost to construct the necessary improvements through payment of applicable development impact fees.

OPENING YEAR (2020) WITHOUT PROJECT

The study intersection Levels of Service for Opening Year (2020) Without Project conditions are shown in Table 5. The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Opening Year (2020) Without Project conditions, except for the following study intersection that is forecast to operate at unacceptable Levels of Service, without improvements (see Table 5):

- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS E/F
- Nevada Street at Lugonia Avenue - #7 (PM peak hour) LOS E

The following improvements are recommended to maintain acceptable Levels of Service at the study intersections for Opening Year (2020) Without Project traffic conditions:

- California Street at I-10 Westbound Ramps - #2
  - Construct a second northbound left turn lane.
  - Construct a third northbound through lane.
  - Reconfigure existing southbound right turn lane to a free right turn lane.
  - Reconfigure the westbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing two additional lanes.

- Nevada Street at Lugonia Avenue - #7
  - Install a traffic signal.
  - Construct one southbound left turn lane.
  - Construct one southbound right turn lane.
  - Restripe northbound shared left-through lane to 1-left turn lane and 1-through-right lane.
  - Restripe eastbound shared left-through lane to 1-left turn lane and 1-through with defacto right lane
  - Restripe westbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane

The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Opening Year (2020) Without Project traffic conditions, with improvements (see Table 5).

OPENING YEAR (2020) WITH PROJECT

The study intersection Levels of Service for Opening Year (2020) With Project conditions are also shown in Table 5. The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Opening Year (2020) With Project conditions, except for the following study intersection that is forecast to operate at unacceptable Levels of Service, without improvements see Table 5):

- California Street at I-10 Westbound Ramps - #2
- Nevada Street at Lugonia Avenue - #7

The previously identified improvements under Opening Year (2020) Without Project would also maintain acceptable Levels of Service at the study intersections for Opening Year (2020) With Project conditions. Therefore, the study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Opening Year (2020) With Project conditions, with improvements (see Table 5).

YEAR 2022 WITHOUT PROJECT

The study intersection Levels of Service for Year 2022 Without Project conditions are shown in Table 6. The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Year 2022 Without Project conditions, except for the following study intersections that are forecast to operate at unacceptable Levels of Service, without improvements (see Table 6):

- California Street at Lugonia Avenue - #1 (PM peak hour) LOS D
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS F/F
- Nevada Street at Lugonia Avenue - #7 (PM peak hour) LOS E

The following improvements are recommended to maintain acceptable Levels of Service at the study intersections for Year 2022 Without Project conditions:

- California Street at Lugonia Avenue - #1
  - Install eastbound right-turn overlap signal phasing.
  - Restripe the westbound approach to consist of one left turn lane, one shared through/left turn lane, and one right turn lane.

- California Street at I-10 Westbound Ramps - #2
  - Construct a second northbound left turn lane.
  - Construct a third northbound through lane.
  - Reconfigure existing southbound right turn lane to a free right turn lane.
  - Reconfigure the westbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing two additional lanes.

- Nevada Street at Lugonia Avenue - #7
  - Install a traffic signal.
  - Construct one southbound left turn lane.
  - Construct one southbound right turn lane.
  - Restripe northbound shared left-through lane to 1-left turn lane and 1-through-right lane.
  - Restripe eastbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane
  - Restripe westbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane

Since improvements at the California Street at I-10 interchange improvements are identified in the Development Mitigation Nexus Study and would be constructed simultaneously, Level of Service operations with improvements at the intersection of California Street at I-10 Eastbound Ramps (Study Intersection #3) are also shown in Table 6, even though these improvements are not required to mitigate the proposed project impact. The following improvements are assumed to be constructed in conjunction with California Street at I-10 interchange improvements:

- California Street at I-10 Eastbound Ramps - #3
  - Construct a second southbound left turn lane.
  - Construct a third southbound through lane.
  - Reconfigure the eastbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing three additional lanes.

The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Year 2022 Without Project conditions, with improvements (see Table 6).

YEAR 2022 WITH PROJECT WITH RECIPROCAL ACCESS

The study intersection Levels of Service for Year 2022 With Project With Reciprocal Access conditions are also shown in Table 6. The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Opening Year (2022) With Project conditions, except for the following study intersections that are forecast to operate at unacceptable Levels of Service, without improvements (see Table 6):

- California Street at Lugonia Avenue - #1
- California Street at I-10 WB Freeway Ramp - #2
- Nevada Street at Lugonia Avenue - #7

The previously identified improvements under Year 2022 Without Project would also maintain acceptable Levels of Service at the study intersections for Year 2022 With Project With Reciprocal Access conditions. Therefore, the study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for Year 2022 With Project With Reciprocal Access conditions, with improvements (see Table 6).

GENERAL PLAN BUILDOUT (YEAR 2040) WITHOUT PROJECT

The study intersection Levels of Service for General Plan Buildout (Year 2040) Without Project conditions are shown in Table 7. The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) Without Project conditions, except for the following study intersections that are forecast to operate at unacceptable Levels of Service, without improvements (see Table 7):

- California Street at Lugonia Avenue - #1 (PM peak hour) LOS D
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hours) LOS F/F
- Nevada Street at Lugonia Avenue - #7 (PM peak hour) LOS F

The following improvements are recommended to maintain acceptable Levels of Service at the study intersections for General Plan Buildout (Year 2040) Without Project traffic conditions:

- California Street at Lugonia Avenue - #1
  - Install eastbound right-turn overlap signal
  - Reconfigure existing westbound left-through lane to left turn lane.
  - Reconfigure existing westbound through lane to left-through lane.

- California Street at I-10 Westbound Ramps - #2
  - Construct a second northbound left turn lane.
  - Construct a third northbound through lane.
  - Reconfigure the westbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing two additional lanes.

- Nevada Street at Lugonia Avenue - #7
  - Install a traffic signal.
  - Construct one southbound left turn lane.
  - Construct one southbound right turn lane.
  - Restripe northbound shared left-through lane to 1-left turn lane and 1-through-right lane.
  - Restripe eastbound shared left-through lane to 1-left turn 1-through lane and 1-through-right lane
  - Restripe westbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane

Since improvements at the California Street at I-10 interchange improvements are identified in the Development Mitigation Nexus Study and would be constructed simultaneously, Level of Service operations with improvements at the intersection of California Street at I-10 Eastbound Ramps (Study Intersection #3) are also shown in Table 7, even though these improvements are not required to mitigate the proposed project impact. The following improvements are assumed to be constructed in conjunction with California Street at I-10 interchange improvements:

- California Street at I-10 Eastbound Ramps - #3
  - Construct a second southbound left turn lane.
  - Construct a third southbound through lane.
  - Reconfigure the eastbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing three additional lanes.

The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) Without Project conditions, with improvements (see Table 7).

GENERAL PLAN BUILDOUT (YEAR 2040) WITH PROJECT

The study intersection Levels of Service for General Plan Buildout (Year 2040) With Project conditions are also shown in Table 7. The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) With Project conditions, except for the following study intersections that are forecast to operate at unacceptable Levels of Service, without improvements (see Table 7):

- California Street at Lugonia Avenue - #1
- California Street at I-10 Westbound Ramps - #2
- Nevada Street at Lugonia Avenue - #7

The previously identified improvements under General Plan Buildout (Year 2040) Without Project would also maintain acceptable Levels of Service at the study intersections for General Plan Buildout (Year 2040) With Project conditions. Therefore, the study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) With Project conditions, with improvements (see Table 7).

GENERAL PLAN BUILDOUT (YEAR 2040) WITH PROJECT WITH RECIPROCAL ACCESS

The study intersection Levels of Service for General Plan Buildout (Year 2040) With Project With Reciprocal Access conditions are also shown in Table 7. The study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) With Project conditions, except for the following study intersections that are forecast to operate at unacceptable Levels of Service, without improvements (see Table 7):

- California Street at Lugonia Avenue - #1
- California Street at I-10 Westbound Ramps - #2
- Nevada Street at Lugonia Avenue - #7

The previously identified improvements under General Plan Buildout (Year 2040) Without Project would also maintain acceptable Levels of Service at the study intersections for General Plan Buildout (Year 2040) With Project With Reciprocal Access. Therefore, the study intersections are forecast to operate within acceptable Levels of Service (D or better for San Bernardino County and C or better for City of Redlands) during the peak hours for General Plan Buildout (Year 2040) With Project With Reciprocal Access conditions, with improvements (see Table 7).

Table 4
Existing Plus Project Intersection Levels of Service

ID	Study Intersection	Traffic Control[1]	Existing				Existing Plus Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay	LOS	Delay	LOS	Delay	LOS
1.	California St at Lugonia Ave	TS	21.0	C	23.6	C	21.5	C	24.3	C
2.	California St at I-10 WB Ramps	TS	64.5	E	35.0	C	67.8	E	36.4	D
3.	California St at I-10 EB Ramps	TS	23.5	C	26.4	C	29.7	C	27.1	C
4.	Project West Access at Lugonia Ave	CSS	11.4	B	13.2	B	12.0	B	14.1	B
5.	Project East Access at Lugonia Ave	CSS	-		-		11.1	B	12.8	B
6.	Nevada St at Project North Access	CSS	-		-		10.9	B	12.5	B
7.	Nevada St at Lugonia Ave	AWS	11.4	B	20.9	C	11.5	B	34.9	D
	With Improvements	TS	-		-		19.2	B	19.9	B

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

(2) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(3) LOS = Level of Service

Table 5
Opening Year (2020) Intersection Levels of Service

ID	Study Intersection	Traffic Control[1]	Without Project				With Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay	LOS	Delay[2]	LOS[3]	Delay	LOS
1.	California St at Lugonia Ave	TS	25.5	C	31.9	C	26.4	C	34.2	C
	With Improvements	TS	-		-		-		-	
2.	California St at I-10 WB Ramps	TS	102.0	F	68.9	E	105.6	F	71.6	E
	With Improvements	TS	15.3	B	16.5	B	15.5	B	16.9	B
3.	California St at I-10 EB Ramps	TS	35.9	D	44.4	D	36.4	D	44.9	D
	With Improvements	TS	15.6	B	16.3	B	15.8	B	16.5	B
4.	Project West Access at Lugonia Ave	CSS	11.8	B	12.9	B	12.3	B	13.6	B
5.	Project East Access at Lugonia Ave	CSS	-		-		12.0	B	14.3	B
6.	Nevada St at Project North Access	CSS	-		-		11.1	B	13.1	B
7.	Nevada St at Lugonia Ave	AWS	12.2	B	41.1	E	12.3	B	40.9	E
	With Improvements	TS	20.5	C	30.1	C	21.2	C	30.5	C

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

(2) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(3) LOS = Level of Service

Table 6
Year 2022 Intersection Levels of Service

ID	Study Intersection	Traffic Control[1]	Without Project With Reciprocal Access				With Project With Reciprocal Access			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay	LOS	Delay	LOS	Delay	LOS
1.	California St at Lugonia Ave	TS	26.0	C	36.6	D	27.1	C	38.9	D
	With Improvements	TS	24.6	C	24.9	C	25.3	C	25.4	C
2.	California St at I-10 WB Ramps	TS	110.5	F	80.5	F	113.9	F	83.3	F
	With Improvements	TS	15.3	B	17.6	B	15.5	B	18.2	B
3.	California St at I-10 EB Ramps	TS	36.7	D	46.4	D	36.3	D	46.8	D
	With Improvements	TS	15.6	B	16.8	B	15.8	B	17.0	B
4.	Project West Access at Lugonia Ave	CSS	12.2	B	13.5	B	12.8	B	14.2	B
5.	Project East Access at Lugonia Ave	CSS	-		-		12.2	B	15.4	C
6.	Nevada St at Project North Access	CSS	13.1	B	20.0	C	13.4	B	20.8	C
7.	Nevada St at Lugonia Ave	AWS	12.8	B	48.0	E	13.1	B	53.6	F
	With Improvements	TS	24.0	C	31.5	C	24.1	C	31.7	C

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

(2) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(3) LOS = Level of Service

Table 7
General Buildout (Year 2040) Intersection Levels of Service

ID	Study Intersection	Traffic Control[1]	General Buildout Without Project				With Project Without Reciprocal Access				With Project With Reciprocal Access			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay[2]	LOS[3]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	California St at Lugonia Ave	TS	27.6	C	44.4	D	28.9	C	50.4	D	28.5	C	50.4	D
	With Improvements	TS	23.6	C	22.7	C	24.4	C	25.4	C	25.1	C	27.3	C
2.	California St at I-10 WB Ramps	TS	108.5	F	108.2	F	111.7	F	110.7	F	117.0	F	112.2	F
	With Improvements	TS	15.2	B	17.4	B	16.7	B	22.7	C	17.6	B	23.1	C
3.	California St at I-10 EB Ramps	TS	33.8	C	49.9	D	35.6	D	51.2	D	34.5	C	52.7	D
	With Improvements	TS	16.6	B	18.0	B	17.0	B	18.8	B	17.0	B	18.8	B
4.	Project West Access at Lugonia Ave	CSS	13.3	B	16.8	C	13.9	B	17.8	C	13.9	B	17.8	C
5.	Project East Access at Lugonia Ave	CSS	-		-		13.4	B	18.2	C	13.3	B	18.6	C
6.	Nevada St at Project North Access	CSS	-		-		13.0	B	16.5	C	-		33.3	D
7.	Nevada St at Lugonia Ave	AWS	14.3	B	93.8	F	14.4	B	94.5	F	14.5	B	105.6	F
	With Improvements	TS	22.8	C	32.2	C	23.1	C	32.6	C	23.1	C	33.0	C

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop; AWS = All Way Stop

(2) Delay is reported for all study intersections. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, Level of Service is based on average delay of the worst individual lane (or movements sharing a lane).

(3) LOS = Level of Service

7. SITE ACCESS

PROJECT DESIGN FEATURES

This analysis assumes the following improvements will be constructed by the project to provide project site access:

Project West Driveway at Lugonia Avenue -#4

- Install southbound stop control.
- Construct the southbound approach to provide restricted outbound access only and consist of one shared left/right turn lane.
- Modify roadway striping to provide a two-way left-turn lane east of project driveway.

Project East Driveway at Lugonia Avenue -#5

- Install southbound stop control.
- Construct the southbound approach to provide full access and consist of one left turn lane and one right turn lane.
- Modify roadway striping to provide a two-way left-turn lane with 100 feet of storage in the eastbound direction.

With construction of the easterly adjacent future development (The Redlands), the following additional access will be provided via reciprocal access agreement:

Nevada Street at Project North Driveway - #6

- Install eastbound stop control.
- Construct the eastbound approach to provide full access and consist one shared left/right turn lane.

SITE ACCESS QUEUEING

Table 8 and Table 9 summarizes the results of a queue analysis for left turn, right turn, or shared through/turn lanes at project driveways based on the forecast 95th-percentile queue lengths shown in the delay calculation worksheets (see Appendix F). Additionally, the recommended storage length is provided for turn lanes that are forecast to exceed the existing storage.

To prevent queueing issues during the AM and PM peak hours, it is recommended that left-turn lane be provided at Lugonia Avenue and Nevada Street (Study Intersection #7) with the following storage lengths: 200-foot westbound left-turn lane, 150-foot eastbound left-turn lane, 220-foot northbound left-turn lane and 150-foot southbound left-turn lane. Additionally, it is recommended that a 100 foot eastbound left-turn lane be provided at Lugonia Avenue and the project east driveway (Study Intersection #5)

Based on the queueing analysis, adequate storage length is forecast to be provided for the left-turn lanes at the project driveways with implementation of the recommended storage lengths.

SIGHT DISTANCE EVALUATION

Sight distance at the project driveways shall comply with standard California Department of Transportation requirements. Sight distance is the continuous length of roadway visible to the driver traveling at a given speed. Two types of sight distance are considered for this driveway: (1) stopping sight distance and (2) corner sight distance (see Appendix I).

The stopping sight distance for a driver approaching on the major roadway to see a vehicle exiting from the minor roadway at the prevailing speed is determined in accordance with Table 201.1 in the Highway Design

Manual. The stopping sight distance is measured from the driver's eye, which is located 3.5 feet above the pavement and right of the centerline of the travel lane to an object that is 6 inches above the pavement.

The minimum corner sight distance requirement is determined in accordance with Table 405.1A in the Highway Design Manual. Corner sight distance accounts for the distance needed for the driver to exit the minor roadway from a stopped position and cross or enter the major roadway without requiring approaching vehicles to substantially slow down.

Based on the posted speed limit of 45 miles per hour, vehicles on Lugonia Avenue require 360 feet of stopping sight distance. Based on the posted speed limit of 45 miles per hour on Lugonia Avenue, passenger cars exiting the project driveway require 495 feet of corner sight distance and California legal semi-tractor trailer trucks require up to 759 feet of line of sight for corner sight distance.

Given the relatively straight horizontal and vertical alignment of Nevada Street and Lugonia Avenue, there does not appear to be any physical roadway geometrics which would cause substantial obstructions to the required sight distances. It is recommended that the landscape plan for the site should utilize the sight distance principals to avoid placing obstructions (such as dense trees or monument signs) within the limited use area on either side of the proposed project access driveways. The area between the line of sight and the centerline of the nearest approaching lane is defined as the limited use area. The limited use area should be kept clear of obstructions, including landscaping over 18 inches to allow better visibility. It is recommended that trees within 50 feet of the driveway be outside of the limited-use area or as far back as reasonably possible. Ultimately, the final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable County of San Bernardino/California Department of Transportation sight distance standards.

GATED ACCESS

The project has three proposed gated entry locations. These include one (1) full access gate on Lugonia Avenue, (1) full access gate on Nevada Street and one (1) exit-only restricted gate on Lugonia Avenue.

Gated Access Issues

For gated entries, the following guidelines should be incorporated into the project design:

- Applicant shall submit plans for City and/or Fire Authority for review and approval.
- Gates shall be equipped with an approved Fire Authority release.
- The gate facility shall be delineated by standard traffic control devices (signs and pavement markings) as determined by the City and/or Fire Authority.
- Access roadway approaches to the gates must have a clear width for two-way operation or one-way operation of each gate. A clear width must also be maintained between any islands to be constructed (for card reader, keypad, etc.).
- The entrance gate control facility shall provide sufficient storage length (multiple lanes) to prevent vehicle queuing from the card reader, keypad, etc. to the intersecting roadway.
- At the entrance gates, an adequate turnaround area shall be provided to accommodate the turning radius of an automobile, pick-up, or delivery truck, eliminating required backing maneuvers onto adjacent roadways.

Gated Queueing Analysis

The key to the successful operation of a gated access is providing the appropriate vehicle stacking length and vehicle turn around location prior to the gate. Vehicle stacking which allows vehicles a safe place to wait for the gate without blocking vehicles in the public right-of-way. Secondly, a well-designed turnaround area is necessary to accommodate any vehicles that are not granted access and prevent the need to drive in reverse

into oncoming traffic. Typically, a minimum of one hundred (100) feet of vehicle stacking and a minimum radius of thirty (30) feet turnaround area are required. It is recommended that these minimums be used in the design of all gated access points. The vehicle stacking area is measured from the gate to the edge of sidewalk or flowline of the adjacent street.

A gate queueing analysis has been performed based on procedures outlined in the Institute of Transportation Engineers, Transportation and Land Development, 1988. The length of necessary stacking space is a function of the number of inbound vehicles, the number of gated accesses to site, the number of service lanes per access, the utilization factor of the service lane, the service rate capacity of the gate, and the confidence interval used for the analysis. The utilization factor is calculated by dividing peak hour volumes by the control point processing rate. The capacity of a swing arm gate is controlled by the rate at which the gate can open and close in a given cycle. An hourly capacity of 180 vehicles has been assumed for the swing arm gate; however, the actual operation of the gate is controlled by vehicle sensors (traffic loop detectors) to prevent the gate from accidentally hitting the vehicles. For this reason, more than one vehicle to may enter or leave when a second vehicle follows immediately behind the first vehicle. This typically occurs at peak times when a vehicle queue may form.

Vehicle queues at the access gates have been calculated based on the trip generation/distribution for the currently proposed development. These queue lengths assume the presence of a by-pass lane for residents with remote access since two inbound lanes are shown on the project site plan.

The following input parameters were utilized for the queuing analysis:

- The number of inbound project trips at each of the gates.
- The entry includes two lanes: left lane for guests/visitors using the call box and a by-pass lane to the right for residents with remote access.
- The processing rate at the control point is assumed to be 180 vehicles per hour (i.e., one visitor vehicle every 20 seconds can be processed and continue through the gate).
- The analysis is based on a standard confidence interval (such that 95 percent (95%) of the time, the queue will be equal to or less than the calculated maximum vehicle queue).
- Vehicle stacking area is measured from the gate to the edge of sidewalk or pedestrian travel way.

The forecast queue of vehicles is increased by one vehicle to account for the service position vehicle and multiplied by standard vehicle length to determine the total required storage capacity. The amount of storage space needed at the gated queue locations is summarized in Table 10. The queue analysis worksheets are provided in Appendix J.

At the primary gated entry from Lugonia Avenue (study intersection #5), the calculated storage space needed is one (1) vehicle length for the AM peak hour and (2) vehicle lengths in the PM peak hour. The proposed site plan shows two entry lanes for this access. The available queue space shown on the proposed plan for the primary access is approximately 200 (west entry lane) and 130 feet (east entry lane). The entry location meets the minimum requirements for gate stacking based on calculated queue lengths of the trip generation/distribution for the currently proposed development.

At the secondary gated entry on the west side of Nevada Street (study intersection #6), the calculated storage space needed is one (1) vehicle length for the AM peak hour and (3) vehicle lengths in the PM peak hour. The proposed site plan shows one entry lane with by-pass, so only one lane was used in the queueing calculations. The available queue space shown on the proposed plan for the parking structure access is approximately 115 from the gate to the edge of travel way. The entry location meets the minimum requirements for gate stacking based on calculated queue lengths of the trip generation/distribution for the currently proposed development.

Table 8
Project Driveway Queueing Analysis (Interim)

ID Intersection	Approach	Lane	Storage Length (Feet)[1]	Peak Hour 95th-Percentile Queue Length (Feet)										Adequate Storage Provided	
				Existing Plus Project		Opening Year (2020) Without Project		Opening Year (2020) With Project		Year 2022 Without Project		Year 2022 With Project			
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	Year 2020	Year 2022
4. Project West Access at Lugonia Ave	Southbound	**Left-Right**	**30**	<25	-	-	-	<25	<25	-	-	<25	<25	YES	YES
	Eastbound	Thru-right	1190	<25	50	<25	65	<25	80	<25	75	<25	95	YES	YES
	Westbound	Left	525	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	YES	YES
5. Project East Access at Lugonia Ave	Southbound	**Left**	**130**	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Southbound	**Right**	**130**	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Eastbound	**Left**	**100**	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Westbound	Thru-right	600	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
6. Nevada St at Project North Access	Northbound	**Left-Thru**	**190**	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Northbound	Thru-right	190	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Southbound	**Left-Thru**	**100**	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Southbound	Thru-right	100	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Eastbound	**Left-Right**	**115**	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Westbound	Left-right	65	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
7. Nevada St at Lugonia Ave	Southbound	Left-Thru	170	55	105	75	140	80	140	120	255	120	255	YES	NO-255
	Southbound	**Right**	**170**	<25	<25	-	-	<25	<25	-	-	<25	<25	YES	YES
	Eastbound [3]	**Left**	**150**	<25	<25	-	-	<25	<25	-	-	<25	35	YES	YES
	Eastbound	Thru-right	295	<25	70	<25	90	<25	95	<25	120	<25	120	YES	YES
	Westbound	**Left**	**150**	35	45	-	-	40	50	-	-	40	55	YES	YES
	Westbound	Thru-right	550	<25	<25	30	40	30	45	35	60	35	65	YES	YES
7. Nevada St at Lugonia Ave With Improvements	**Southbound**	**Left**	**145**	<25	120	115	130	115	130	125	145	125	145	YES	YES
	Southbound	**Right**	**170**	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	YES	YES
	Eastbound [3]	**Left**	**150**	<25	30	<25	80	30	85	40	105	45	105	YES	YES
	Eastbound	Thru-right	295	40	190	45	200	55	205	65	210	80	210	YES	YES
	Westbound	**Left**	**200**	110	145	115	155	115	155	155	155	155	155	YES	YES
	Westbound	Thru-right	550	65	70	80	100	85	105	130	125	135	130	YES	YES

Notes:

(1) Distance to the adjacent driveway (existing or proposed future development).

(2) Improvements = **Bold**

(3) The eastbound left turn lane should be provided in conjunction with intersection improvements.

(4) Queueing analysis does not include gate delay. For gate queueing analysis see Table 10 Gate Stacking / Minimum Queue Requirements.

Table 9
Project Driveway Queueing Analysis (General Plan Buildout)

ID	Intersection	Approach	Lane	Storage Length (Feet)[1]	95th-Percentile Queue Length (Feet)						Adequate Storage Provided?	
					General Buildout Without Project		With Project Without Reciprocal Access		With Project With Reciprocal Access			
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	With Project	With Reciprocal Access
4.	Project West Access at Lugonia Ave	Southbound	**Left-right**	**30**	-	-	<25	<25	<25	<25	YES	YES
		Eastbound	Thru-right	1190	<25	<25	<25	<25	<25	<25	YES	YES
		Westbound	Left	525	<25	<25	<25	<25	<25	<25	YES	YES
5.	Project East Access at Lugonia Ave	Southbound	**Left**	**130**	-	-	<25	<25	<25	<25	YES	YES
		Southbound	**Right**	**130**	-	-	<25	<25	<25	<25	YES	YES
		Eastbound	**Left**	**100**	-	-	<25	<25	<25	<25	YES	YES
		Westbound	Thru-right	600	-	-	<25	<25	<25	<25	YES	YES
6.	Nevada St at Project North Access	Northbound	Left	190	-	-	<25	<25	<25	<25	YES	YES
		Northbound	Thru-right	190	-	-	<25	<25	<25	<25	YES	YES
		Southbound	Left	100	-	-	<25	<25	<25	<25	YES	YES
		Southbound	Thru-right	**100**	-	-	<25	<25	<25	<25	YES	YES
		Eastbound	**Left-right**	**115**	-	-	<25	<25	<25	<25	YES	YES
		Westbound	Left-right	65	-	-	<25	<25	<25	<25	YES	YES
7.	Nevada St at Lugonia Ave	**Southbound**	**Left**	170	<25	55	<25	55	<25	55	YES	YES
		Southbound	**Right**	**170**	<25	<25	<25	<25	<25	<25	YES	YES
		Eastbound [3]	**Left**	**150**	<25	35	<25	35	<25	35	YES	YES
		Eastbound	Right	295	<25	<25	<25	<25	<25	<25	YES	YES
		Westbound	**Left**	**150**	40	55	40	55	40	55	YES	YES
		Westbound	Thru-right	550	45	75	45	85	45	100	YES	YES
7.	Nevada St at Lugonia Ave With Improvements	**Southbound**	**Left**	**165**	40	155	40	155	70	165	YES	YES
		Southbound	**Right**	**170**	<25	35	<25	40	<25	35	YES	YES
		Eastbound [3]	**Left**	**150**	60	115	70	120	65	125	YES	YES
		Eastbound	Thru-right	295	65	250	75	255	70	260	YES	YES
		Westbound	**Left**	**200**	120	155	120	155	120	175	YES	YES
		Westbound	Thru-right	550	135	140	135	150	135	180	YES	YES

Notes:

(1) Distance to the adjacent driveway (existing or proposed future development).

(2) Improvements = **Bold**

(3) The eastbound left turn lane should be provided in conjunction with intersection improvements.

(4) Queueing analysis does not include gate delay. For gate queueing analysis see Table 10 Gate Stacking / Minimum Queue Requirements.

Table 10
Gate Stacking / Minimum Queue Requirements

Peak Hour	Peak Inbound Flow Rate Per Hour	Service Rate Capacity Per Hour Per Lane	Utilization Factor[1]	Minimum Calculated Queue Length in Feet	Minimum Recommended Queue Length in Feet[2]	Queue Length on Proposed Plan
Lugonia Ave West of Nevada St (Main)						
AM Peak Hour	31	180	0.17	25	50	130
PM Peak Hour	88	180	0.49	50	50	130
Nevada Street - Redlands (Parking structure)						
AM Peak Hour	29	180	0.16	25	50	115
PM Peak Hour	84	180	0.47	75	75	115

Notes:

(1) Source: Institute of Transportation Engineers, Transportation and Land Development, 1988 Applications of Queueing Analysis, page 231.

(2) If the calculated length is less than 2 vehicle lengths, 2 vehicles is used as the minimum queue length.

8. STATE HIGHWAY ANALYSIS

This section describes the prescribed methodology used to assess whether Freeway mainline or ramp analysis is required and definition of deficiency and significant traffic impact are discussed.

CALIFORNIA DEPARTMENT OF TRANSPORTATION REGIONAL FREEWAY

The closest freeway to the proposed site is the I-10 Freeway that is currently six (6) lanes in each direction and located approximately one-half (drivable) miles south of the project site.

Based on the mainline average daily traffic volumes (191,000 to 194,000 vehicles per day) and the capacity of a 12 lane State Highway as specified in the San Bernardino County Congestion Management Program, the freeway mainline currently operates at Levels of Service B to D.

TRIP CONTRIBUTION

The project trip distributions depict the project trip contribution during the peak hours to the roadway segment closest to the freeway as shown on Figure 54.

The project does not contribute greater than the freeway threshold volume of 100 two-way peak hour trips or (1% of mainline capacity) to the I-10 Freeway. The project does contribute trips greater than the arterial link threshold volume of 50 two-way trips in the peak hours on freeway ramp terminals. The project does not contribute trips greater than one percent (1%) of ramp capacity to freeway ramps.

STATE HIGHWAY ANALYSIS METHODOLOGIES

Intersection Delay Methodology

As previously noted in the Methodology section, the technique used to assess the performance of intersections within the California Department of Transportation jurisdiction is known as the intersection delay methodology based on procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition).

Off-Ramp Queueing Methodology

For freeway off-ramps satisfying the trip contribution criteria, the 95th-percentile queue length has also been assessed based on procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition) and reported in the delay/Level of Service calculation worksheets (see Appendix F).

Thresholds of Significance

As previously noted, a project traffic impact is considered significant if the addition of project generated trips is forecast to cause the performance of a State Highway study intersection to change from acceptable operation (Level of Service D or better) to deficient operation (Level of Service E or F).

For freeway off-ramps, a project impact is considered significant if the addition of project generated trips is forecast to cause or worsen a condition where the queue length exceeds the storage capacity.

FREEWAY RAMP TERMINUS OPERATIONS

Intersection Levels of Service

As shown in the preceding operational analysis, the State highway study intersections are forecast to operate at Level of Service D or better during the peak hours traffic conditions, except for the following study intersection that is projected to operate at Level of Service (E or F), without improvements:

Existing Without Project Traffic Conditions (see Table 1):
- California Street at I-10 Westbound Ramps - #2 (AM peak hour) LOS E

Existing Plus Project Traffic Conditions (see Table 4):
- California Street at I-10 Westbound Ramps - #2 (AM peak hour) LOS E

Opening Year (2020) Without Project Traffic Conditions (see Table 5):
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS F/E

Opening Year (2020) With Project Traffic Conditions (see Table 5):
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS F/E

Opening Year (2022) Without Project Traffic Conditions (Table 6):
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS F/F

Opening Year (2022) With Project Traffic Conditions (Table 6):
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS F/F

General Plan Buildout (Year 2040) Without Project Traffic Conditions (Table 7):
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS F/F
- California Street at I-10 Eastbound Ramps - #3 (PM peak hour) LOS E

General Plan Buildout (Year 2040) With Project – Alternative 1Traffic Conditions (Table 7):
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS F/F
- California Street at I-10 Eastbound Ramps - #3 (PM peak hour) LOS E

General Plan Buildout (Year 2040) With Project – Alternative 2 Traffic Conditions (Table 7):
- California Street at I-10 Westbound Ramps - #2 (AM/PM peak hour) LOS F/F
- California Street at I-10 Eastbound Ramps - #3 (PM peak hour) LOS E

Intersection Mitigation Measures

The improvements necessary to bring the freeway ramp intersection operations back to an acceptable Level of Service have been identified in the County of San Bernardino Nexus Program. Therefore, as mitigation for the project share of the impact, the project shall contribute its share of the cost to construct the necessary improvements through payment of applicable development impact fees.

The proposed project shall contribute its fair share, through the adopted development impact fee program, to the following mitigation measure improvements for General Plan Buildout (Year 2040) Without and With Project:

- California Street at I-10 Westbound Ramps - #2
  - Construct a second northbound left turn lane.
  - Construct a third northbound through lane.
  - Reconfigure existing southbound right turn lane to a free right turn lane.
  - Reconfigure the westbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing two additional lanes.

- California Street at I-10 Eastbound Ramps - #3
  - Construct a second southbound left turn lane.
  - Construct a third southbound through lane.
  - Reconfigure the eastbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing three additional lanes.

Off-Ramp Queueing

Table 11 summarizes the results of a queue analysis for left-turn, right-turn, or shared through/turn lanes for freeway off-ramp queueing based on the forecast 95th-percentile queue lengths shown in the delay calculation worksheets (see Appendix F). Additionally, the recommended storage length is provided for turn lanes that are forecast to exceed the existing storage.

Table 11
Freeway Off-Ramp Queueing Analysis

ID	Intersection	Approach	Lane	Queue Length / Distance (Feet)										Adequate Storage Provided	
				Designated Turning Lane Storage Length[1]	Distance From End of Designated Lane to Gore Point	Peak Hour 95th-Percentile Queue Length[2]		Queue Length Exceeding Turning Lane Storage		Sum of Queue Lengths Exceeding Turning Lane Storage		Off-Ramp Storage Length Remaining			
						AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
2.	California St at I-10 WB Ramps	Westbound	**Left**[3]	**240**	915	225	190	0	0	0	0	915	915	YES	YES
	With Improvements [4]	Westbound	Left	580		225	190	0	0						
		Westbound	Thru-right	580		225	105	0	0						
		Westbound	**Right**[3]	**240**		230	105	0	0						
3.	California St at I-10 EB Ramps	Eastbound	**Left**[3]	**240**	2080	330	230	90	0	190	55	1890	2025	YES	YES
	With Improvements [4]	Eastbound	**Left**[3]	**240**		330	230	90	0						
		Eastbound	Thru-right	240		245	265	5	25						
		Eastbound	**Right**[3]	**240**		245	270	5	30						

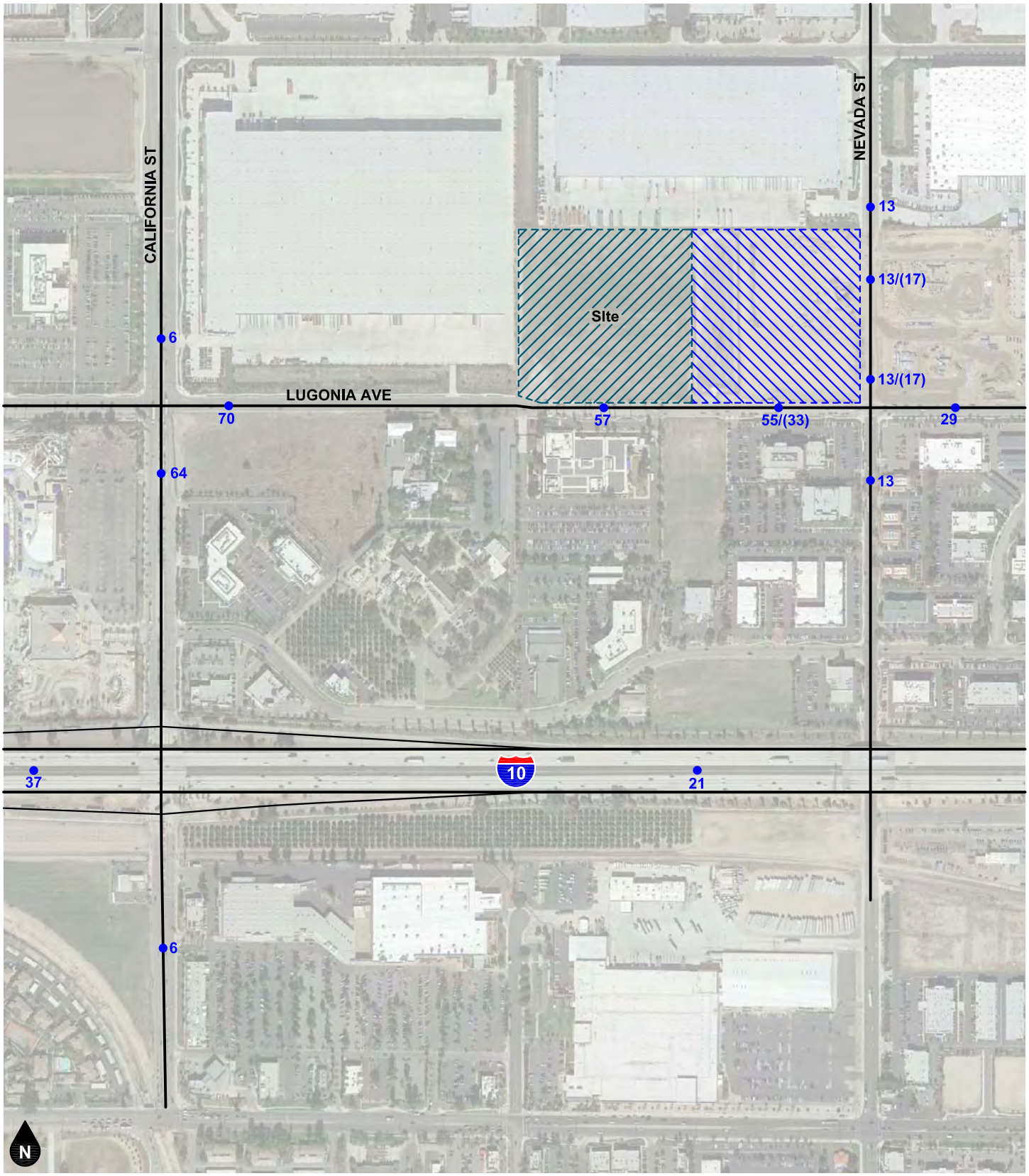
Notes:

(1) Ramp length = Length from stop bar to gore point. When a designated turning lane does not exist, the original ramp lane desiganted storage with improvments is equal to the new storage length of the adjacent lane.

(2) Peak Hour 95th-Percentile Queue Length shown for General Plan Buildout (Year 2040) With Project conditions.

(3) The westbound and eastbound turn lanes shall be provided in conjunction with intersection/interchange improvements.

(4) Improvements = **Bold**



Legend

- ●## Vehicles Per Day (1,000's)
- ●##/(##) Phase 1 (Phase 2)

Figure 54
Project Trip Contribution

9. MITIGATION MEASURES

As mitigation for the identified improvements necessary to maintain acceptable Levels of Service and mitigate project impacts, the proposed project shall contribute through an adopted traffic impact fee program in addition to any fair share contributions shown within the traffic impact analysis which is not covered within this fee program.

Since the identified improvements are necessary to address a degradation of Level of Service for already deficient intersection operations under "without project" conditions, the project shall pay its fair share of fees to an applicable program for the required mitigation measure improvements.

SUMMARY OF IMPROVEMENTS

The proposed project shall contribute its fair share, through the adopted development impact fee program, to the following measures to mitigate the impact of the project at the study intersections:

- California Street at Lugonia Avenue - #1
  - Install eastbound right-turn overlap signal phasing.
  - Restripe the westbound approach to consist of one left turn lane, one shared through/left turn lane, and one right turn lane.

- California Street at I-10 Westbound Ramps - #2
  - Construct a second northbound left turn lane.
  - Construct a third northbound through lane.
  - Reconfigure existing southbound right turn lane to a free right turn lane.
  - Reconfigure the westbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing two additional lanes.

- Nevada Street at Lugonia Avenue - #7
  - Install a traffic signal.
  - Construct one southbound left turn lane.
  - Construct one southbound right turn lane.
  - Restripe northbound shared left-through lane to 1-left turn lane and 1-through-right lane.
  - Restripe eastbound shared left-through lane to 1-left turn 1-through lane and 1-through-right lane
  - Restripe westbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane

Since improvements at the California Street at I-10 interchange improvements are identified in the Development Mitigation Nexus Study and would be constructed simultaneously, Level of Service operations with improvements at the intersection of California Street at I-10 Eastbound Ramps (Study Intersection #3) have also been identified, even though these improvements are not required to mitigate the proposed project impact. The following improvements are assumed to be constructed in conjunction with California Street at I-10 interchange improvements:

- California Street at I-10 Eastbound Ramps - #3
  - Construct a second southbound left turn lane.
  - Construct a third southbound through lane.
  - Reconfigure the eastbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing three additional lanes.

Improvements at the project driveways are project design features which shall be constructed by the project. Site-adjacent roadway improvements shall be constructed in conjunction with the project.

FAIR SHARE ANALYSIS

The project fair share is based on the proportion of project peak hour traffic volume contributed to the improvement location relative to the total new peak hour traffic volume for General Plan Buildout (Year 2040) With Project traffic conditions. The cost estimates for the identified improvements have been obtained from the County of San Bernardino Congestion Management Program (2003 Update); see Appendix K.

The necessary improvements to bring the study area intersection operations back to an acceptable Level of Service have been identified in the County of San Bernardino Nexus Program for the following intersections:

- California Street at I-10 Westbound Ramps - #2
  - Interchange improvements
- California Street at I-10 Eastbound Ramps - #3
  - Interchange improvements
- Nevada Street at Lugonia Avenue - #7
  - Traffic signal installation.

Therefore, as mitigation for the project share of the impact, the project shall contribute its share of the cost to construct the necessary improvements through payment of applicable development impact fees. The project proportional trip contributions have been calculated in Table 12 and the project fair share cost estimate is $67,749.

The project fair share shown above represents a rough order of magnitude; it is intended only for the discussion purposes of this traffic impact analysis and does not imply any legal responsibility or formula for contributions or mitigation.

CONSTRUCTION TRAFFIC CONTROL MEASURES

A construction work site traffic control plan shall be submitted to the City for review and approval prior to the start of any construction work. The plans shall show the location of any roadway, sidewalk, bike route, bus stop or driveway closures, traffic detours, haul routes, hours of operation, protective devices, warning signs and access to abutting properties. Temporary traffic controls used around the construction area should adhere to the standards set forth in the California Manual of Uniform Traffic Control Devices (2014) and construction activities should adhere to applicable local ordinances.

Site development would require the use of haul trucks during site clearing and excavation and the use of a variety of other construction vehicles throughout the construction work at the site. Transportation of heavy construction equipment and or materials, which requires the use of oversized vehicles, will require the appropriate transportation permit.

Table 12
Project Intersection Trip Contribution

ID	Study Intersection	Estimated Construction Cost[1]	Peak Hour	Peak Hour Volume: Existing	Peak Hour Volume: General Buildout (Year 2040) With Project	Project Trips	New Trips	Project % of New Trips	Project % at Intersection[2]	Project Fair Share Cost
1.	California St at Lugonia Ave	$60,000	AM	1,383	2,187	59	804	7.3%	7.3%	$4,403
			PM	1,732	2,991	70	1,259	5.6%		
2.	California St at I-10 WB Ramps	$525,000	AM	2,683	3,822	54	1,139	4.7%	4.7%	$24,890
			PM	2,402	3,888	64	1,486	4.3%		
3.	California St at I-10 EB Ramps	$500,000	AM	2,509	3,565	28	1,056	2.7%	3.0%	$15,093
			PM	2,724	4,016	39	1,292	3.0%		
4.	Project West Access at Lugonia Ave	NA[3]	AM	362	630	63	268	23.5%	23.5%	-
			PM	517	901	73	384	19.0%		
5.	Project East Access at Lugonia Ave	NA[3]	AM	391	854	77	463	16.6%	16.6%	-
			PM	585	1,344	110	759	14.5%		
6.	Nevada St at Project North Access	NA[4]	AM	360	851	11	491	2.2%	2.2%	-
			PM	579	1,341	13	762	1.7%		
7.	Nevada St at Lugonia Ave [5]	$360,000	AM	865	1,543	44	678	6.5%	6.5%	$23,363
			PM	1,484	2,624	55	1,140	4.8%		
Total		$1,445,000								$67,749

Notes:

(1) Cost estimate based on values from the San Bernardino County Transportation Authority Preliminary Construction Cost Estimates For Congestion Management Program (2003). Costs estimates are sensitive to the quantity and location of work specified for a given installation. These values represent the relative magnitude of the cost and should be verified through the bidding process.

(2) Project share of new trips shown are the greater of the AM or PM percent contribution.

(3) Project related improvement to mitigate direct impacts and improve level of service. Improvements to Lugonia Avenue at project access intersections will be funded and/or constructed by the applicant.

(4) Improvements to Nevada Street at project reciprocal access intersection will be funded and/or constructed by others.

(5) Nevada Street at Lugonia Avenue intersection roadway widening improvements for the north, east and west legs of the intersection are to be constructed by others for a project currently under construction. Lugonia Avenue Signing and Striping Plan included in Appendix H.

10. CONCLUSIONS

The recommendations in this section address on-site improvements, off-site improvements and the phasing of all necessary study area transportation improvements. The improvements were determined through the operations analysis of section 6 and mitigation measures of section 9. Table 13 and Table 14 summarizes the operational analysis for analysis scenarios.

PROJECT DESIGN FEATURES

This analysis assumes the following improvements will be constructed by the project to provide project site access:

Project West Driveway at Lugonia Avenue -#4

- Install southbound stop control.
- Construct the southbound approach to provide restricted outbound access only and consist of one shared left/right turn lane.
- Modify roadway striping to provide a two-way left-turn lane east of project driveway.

Project East Driveway at Lugonia Avenue -#5

- Install southbound stop control.
- Construct the southbound approach to provide full access and consist of one left turn lane and one right turn lane.
- Modify roadway striping to provide a two-way left-turn lane with 100 feet of storage in the eastbound direction.

With construction of the easterly adjacent future development (The Redlands), the following additional access will be provided via reciprocal access agreement:

Nevada Street at Project North Driveway - #6

- Install eastbound stop control.
- Construct the eastbound approach to provide full access and consist one shared left/right turn lane.

MITIGATION MEASURES

The proposed project shall contribute its fair share, through the adopted development impact fee program, to the following measures to mitigate the impact of the project at the study intersections:

- California Street at Lugonia Avenue - #1
  - Install eastbound right-turn overlap signal phasing.
  - Restripe the westbound approach to consist of one left turn lane, one shared through/left turn lane, and one right turn lane.

- California Street at I-10 Westbound Ramps - #2
  - Construct a second northbound left turn lane.
  - Construct a third northbound through lane.
  - Reconfigure existing southbound right turn lane to a free right turn lane.
  - Reconfigure the westbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing two additional lanes.

- Nevada Street at Lugonia Avenue - #7
  - Install a traffic signal.
  - Construct one southbound left turn lane.

- Construct one southbound right turn lane.
- Restripe northbound shared left-through lane to 1-left turn lane and 1-through-right lane.
- Restripe eastbound shared left-through lane to 1-left turn 1-through lane and 1-through-right lane
- Restripe westbound shared left-through lane to 1-left turn, 1-through lane and 1-through-right lane

Since improvements at the California Street at I-10 interchange improvements are identified in the Development Mitigation Nexus Study and would be constructed simultaneously, Level of Service operations with improvements at the intersection of California Street at I-10 Eastbound Ramps (Study Intersection #3) have also been identified, even though these improvements are not required to mitigate the proposed project impact. The following improvements are assumed to be constructed in conjunction with California Street at I-10 interchange improvements:

- California Street at I-10 Eastbound Ramps - #3
  - Construct a second southbound left turn lane.
  - Construct a third southbound through lane.
  - Reconfigure the eastbound approach to consist of two left turn lanes, one shared through/right turn lane, and one right turn lane by constructing three additional lanes.

Figure 55 graphically illustrates the identified improvements. Improvements at the project driveways are project design features which shall be constructed by the project. Site-adjacent improvements shall be constructed in conjunction with the project.

GENERAL RECOMMENDATIONS

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project.

Figure 56 summarizes the circulation recommendations for the proposed project.

All roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project should be constructed in accordance with applicable engineering standards and to the satisfaction of the County of San Bernardino Public Works Department.

Site-adjacent roadways should be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the County of San Bernardino Public Works Department.

In conjunction with standard County of San Bernardino development review procedures, on-site traffic signing and striping plans should be prepared in accordance with applicable State and Federal standards.

Adequate off-street parking should be provided to the satisfaction of County of San Bernardino Land Use Services based on supporting parking and density analysis prepared for the project.

The final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable County of San Bernardino/California Department of Transportation sight distance standards.

As is the case for any roadway design, the County of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

Table 13
Summary of Intersection Levels of Service - Year 2020 and Year 2022

ID	Study Intersection	Existing				Existing Plus Project				Opening Year (2020) Without Project				Opening Year (2020) With Project				Year 2022 Without Project With Reciprocal Access				Year 2022 With Project With Reciprocal Access			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay[1]	LOS[2]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	California St at Lugonia Ave	21.0	C	23.6	C	21.5	C	24.3	C	25.5	C	31.9	C	26.4	C	34.2	C	26.0	C	36.6	D	27.1	C	38.9	D
	With Improvements	-		-		-		-		-		-		-		-		24.6	C	24.9	C	25.3	C	25.4	C
2.	California St at I-10 WB Ramps	64.5	E	35.0	C	67.8	E	36.4	D	102.0	F	68.9	E	105.6	F	71.6	E	110.5	F	80.5	F	113.9	F	83.3	F
	With Improvements									15.3	B	16.5	B	15.5	B	16.9	B	15.3	B	17.6	B	15.5	B	18.2	B
3.	California St at I-10 EB Ramps	23.5	C	26.4	C	29.7	C	27.1	C	35.9	D	44.4	D	36.4	D	44.9	D	36.7	D	46.4	D	36.3	D	46.8	D
	With Improvements	-		-						15.6	B	16.3	B	15.8	B	16.5	B	15.6	B	16.8	B	15.8	B	17.0	B
4.	Project West Access at Lugonia Ave	11.4	B	13.2	B	12.0	B	14.1	B	11.8	B	12.9	B	12.3	B	13.6	B	12.2	B	13.5	B	12.8	B	14.2	B
5.	Project East Access at Lugonia Ave	-		-		11.1	B	12.8	B	-		-		12.0	B	14.3	B	-		-		12.2	B	15.4	C
6.	Nevada St at Project North Access	-		-		10.9	B	12.5	B	-		-		11.1	B	13.1	B	13.1	B	20.0	C	13.4	B	20.8	C
7.	Nevada St at Lugonia Ave	11.4	B	20.9	C	11.5	B	34.9	D	12.2	B	41.1	E	12.3	B	40.9	E	12.8	B	48.0	E	13.1	B	53.6	F
	With Improvements	-		-		19.2	B	19.9	B	20.5	C	30.1	C	21.2	C	30.5	C	24.0	C	31.5	C	24.1	C	31.7	C

Notes:

(1) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(2) LOS = Level of Service

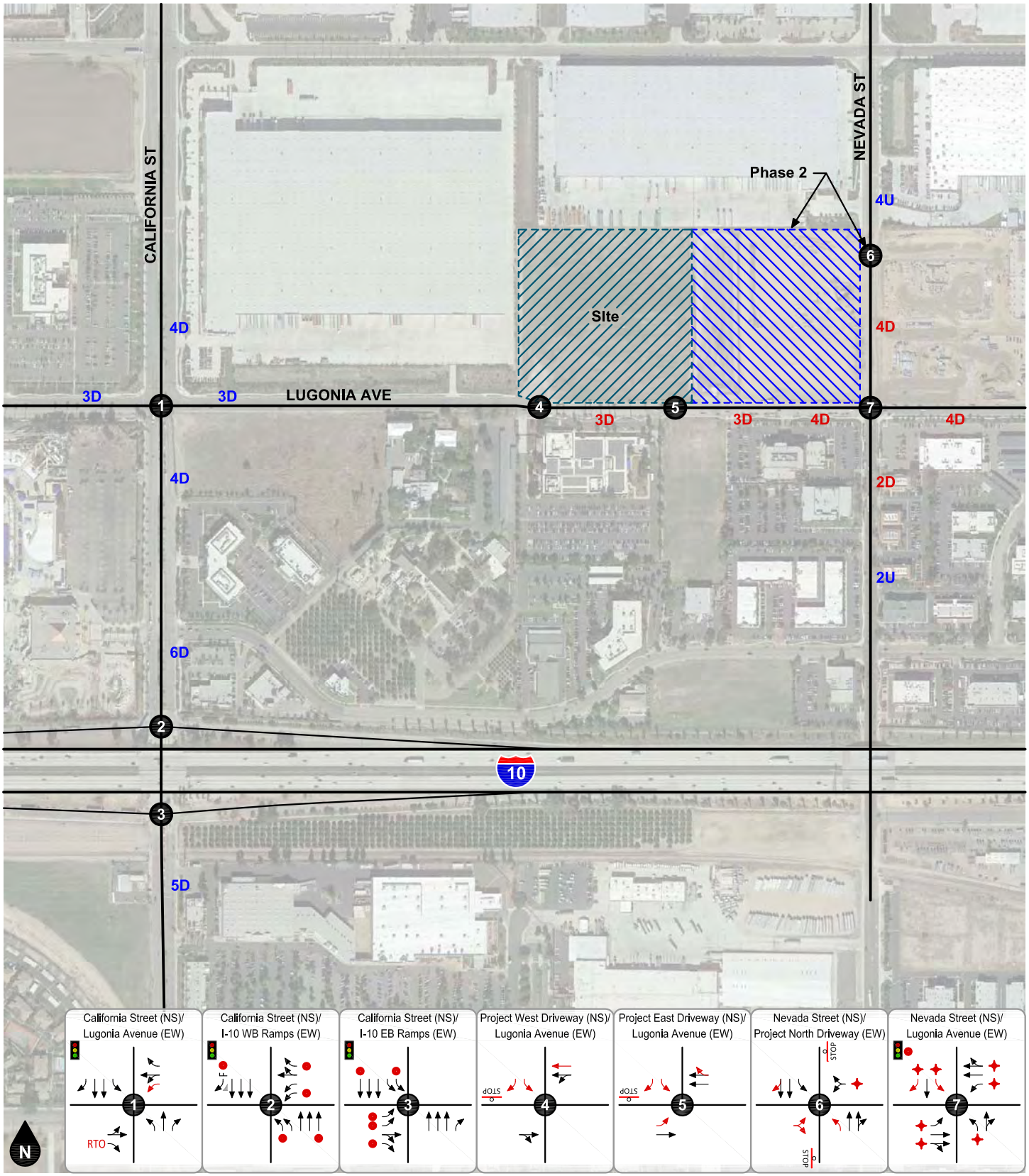
Table 14
Summary of Intersection Levels of Service - General Plan Buildout

ID	Study Intersection	General Buildout Without Project				With Project Without Reciprocal Access				With Project With Reciprocal Access			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	California St at Lugonia Ave	27.6	C	44.4	D	28.9	C	50.4	D	28.5	C	50.4	D
	With Improvements	23.6	C	22.7	C	24.4	C	25.4	C	25.1	C	27.3	C
2.	California St at I-10 WB Ramps	108.5	F	108.2	F	111.7	F	110.7	F	117.0	F	112.2	F
	With Improvements	15.2	B	17.4	B	16.7	B	22.7	C	17.6	B	23.1	C
3.	California St at I-10 EB Ramps	33.8	C	49.9	D	35.6	D	51.2	D	34.5	C	52.7	D
	With Improvements	16.6	B	18.0	B	17.0	B	18.8	B	17.0	B	18.8	B
4.	Project West Access at Lugonia Ave	13.3	B	16.8	C	13.9	B	17.8	C	13.9	B	17.8	C
5.	Project East Access at Lugonia Ave	-		-		13.4	B	18.2	C	13.3	B	18.6	C
6.	Nevada St at Project North Access	-		-		13.0	B	16.5	C	-		33.3	D
7.	Nevada St at Lugonia Ave	14.3	B	93.8	F	14.4	B	94.5	F	14.5	B	105.6	F
	With Improvements	22.8	C	32.2	C	23.1	C	32.6	C	23.1	C	33.0	C

Notes:

(1) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst individual lane (or movements sharing a lane).

(2) LOS = Level of Service

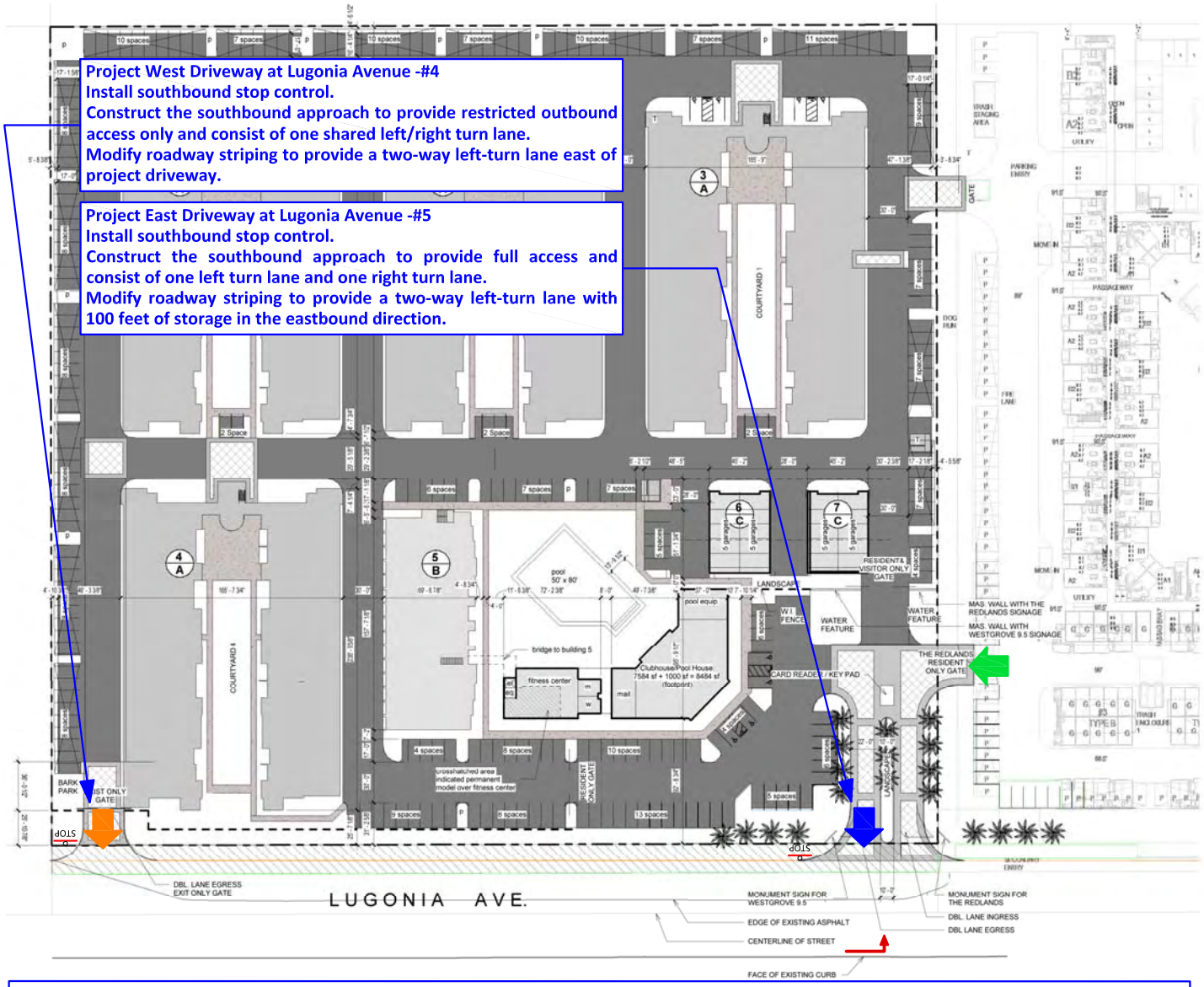


Legend

- Traffic Signal
- STOP Stop Sign
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Lane Movement

RTO Right Turn Overlap
F Free Right Turn Lane
d De Facto Right Turn Lane
● Nexus Improvements
✦ Lugonia / Nevada Improvements by Others
Opening Year Improvements

Figure 55
Summary of Improvements



All roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project should be constructed in accordance with applicable engineering standards and to the satisfaction of the County of San Bernardino Public Works Department.

Site-adjacent roadways should be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the County of San Bernardino Public Works Department.

In conjunction with standard County of San Bernardino development review procedures, on-site traffic signing and striping plans should be prepared in accordance with applicable State and Federal standards.

Adequate off-street parking should be provided to the satisfaction of County of San Bernardino Land Use Services based on supporting parking and density analysis prepared for the project.

The final grading, landscaping, and street improvement plans should demonstrate that sight distance standards are met in accordance with applicable County of San Bernardino/California Department of Transportation sight distance standards.

As is the case for any roadway design, the County of San Bernardino should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

N

Legend

- Stop Sign
- Full Access Driveway
- Restricted Exit Only Driveway
- Reciprocal Access
- EB Left Turn Storage Lane

Figure 56
Circulation Recomendations

APPENDICES

Appendix A Glossary

Appendix B Scoping Agreement

Appendix C Volume Count Worksheets

Appendix D Travel Demand Model Plots

Appendix E Post-Processing Worksheets

Appendix F Level of Service Worksheets

Appendix G Traffic Signal Warrant Worksheets

Appendix H Lugonia Avenue Signing and Striping Plans

Appendix I Highway Design Manual Sight Distance Standards

Appendix J Stacking/Minimum Queue Requirements

Appendix K Preliminary Construction Cost Estimates from Construction Management Program

APPENDIX A

GLOSSARY

GLOSSARY OF TERMS

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
LOS	Level of Service
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CONTROL DELAY: The component of delay, typically expressed in seconds per vehicle, resulting from the type of traffic control at an intersection. Control delay is measured by comparison with the uncontrolled condition; it includes delay incurred by slowing down, stopping/waiting, and speeding up.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.

CYCLE LENGTH: The time period in seconds required for a traffic signal to complete one full cycle of indications.

CUL-DE-SAC: A local street open at one end only and with special provisions for turning around.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENT (PCE): A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SHARED/RECIPROCAL PARKING AGREEMENT: A written binding document executed between property owners to provide a designated number of off-street parking stalls within a designated area to be available for specified businesses or land uses.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queueing to occur.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle on the major roadway travelling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 6 inches above the pavement.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

SCOPING AGREEMENT

Perrie Ilercil

From: Johnson, Jeremy - DPW <Jeremy.Johnson@dpw.sbcounty.gov>
Sent: Wednesday, September 04, 2019 8:01 AM
To: Giancarlo Ganddini; Perrie Ilercil; Duron, Heidi - LUS
Cc: Mann, Grant; Pham, Anthony - DPW; Shanabo, Eanas - DPW
Subject: RE: Westgrove Apartments; APN 0292-053-08 P201900171 (TRSTY1900013)/ The Redlands; APN 0292-053-12 P201700245 (TRSTY1900014)

Giancarlo,

Traffic can just incorporate the adjustment into the traffic study review process. I'll coordinate with Perrie if I have any questions.

Jeremy Johnson
Department of Public Works
Phone: 909-387-8186
Fax: 909-387-7809
825 E. Third Street
San Bernardino, CA 92415

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www.SBCounty.gov

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From: Giancarlo Ganddini [mailto:giancarlo@ganddini.com]
Sent: Tuesday, September 03, 2019 6:17 PM
To: Perrie Ilercil; Johnson, Jeremy - DPW; Duron, Heidi - LUS
Cc: Mann, Grant; Pham, Anthony - DPW; Shanabo, Eanas - DPW
Subject: RE: Westgrove Apartments; APN 0292-053-08 P201900171 (TRSTY1900013)/ The Redlands; APN 0292-053-12 P201700245 (TRSTY1900014)

Jeremy/Heidi,

I thought it might be helpful to provide a little background on the project changes and the related documents. The Westgrove project is changing some of the units from studio/one bedroom units to two bedroom units, but maintains the same total unit count. This does not affect the trip generation since trip generation is based on number of dwelling units; however, the change did result in the need for additional parking, which is based on number of bedrooms. Thus, the parking structure at the adjacent Redlands project was increased from 704 to 812 parking spaces and the allocation for Westgrove within the parking structure was increased from 30 to 95 parking spaces. This has a ripple effect on the traffic studies/scoping agreements, with a proportional increase in the percentage of Westgrove trips taking access at Nevada Street to reflect the additional parking located within the structure.

Ganddini Group has re-submitted the parking memo and each of the scoping documents, in addition to the responses to comments on the previous submittals for County review. We hope these documents will help streamline County's review of the revised reports to be submitted shortly.

Please let us know if you have any questions regarding the proposed revisions. If understood and acceptable, please let us know so that we may proceed with finalizing the traffic studies. Can you please provide an estimated timeline for questions/comments or approval to proceed?

Thank you,

Giancarlo Ganddini, PE, PTP
Principal

GANDDINI GROUP, INC.
550 Parkcenter Drive, Suite 202
Santa Ana, CA 92705
o. 714 795 3100 x 101
c. 949 735 9314
www.ganddini.com

From: Perrie Ilercil
Sent: Tuesday, September 03, 2019 2:40 PM
To: 'Jeremy Johnson (Jeremy.Johnson@dpw.sbcounty.gov)' <Jeremy.Johnson@dpw.sbcounty.gov>; Heidi Duron (hduron@lusd.sbcounty.gov) <hduron@lusd.sbcounty.gov>; Giancarlo Ganddini <giancarlo@ganddini.com>
Cc: Mann, Grant <GMann@dpw.sbcounty.gov>; Pham, Anthony - DPW <Anthony.Pham@dpw.sbcounty.gov>; Shanabo, Eanas - DPW <Eanas.Shanabo@dpw.sbcounty.gov>
Subject: Westgrove Apartments; APN 0292-053-08 P201900171 (TRSTY1900013)/ The Redlands; APN 0292-053-12 P201700245 (TRSTY1900014)

Hi Heidi Duron (LUSD, planner) / Jeremy Johnson (DPW, traffic)

The revised parking memorandum which shows the number of parking spaces on both Westgrove and Redlands projects is attached.
The amount of parking in the parking structure was increased to provide additional parking for the projects.

Jeremy, I have also attached the revised scoping agreement for Westgrove and Redlands projects as the parking distribution has changed slightly with this change.
Please review the revised scoping agreement and get back to me as quickly as possible so that any/all changes can be made on the revised reports.

If you have any questions or comments, please call me.

Sincerely,

***Perrie Ilercil,* PE (AZ)**
Senior Engineer

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Santa Ana, CA 92705
o. 714 795 3100 x 103
c. 949 257-3126
e: perrie@ganddini.com
www.ganddini.com

SCOPE FOR TRAFFIC STUDY

Project Name:	Westgrove Apartment Project (**P201900171**)

This Scope for Traffic Study acknowledges San Bernardino County Department of Public Works, Traffic Division requirements of traffic impact analysis for the project and is subject to change:

Project Address:	northwest of Nevada Street and Lugonia Avenue		
Project Description:	282 dwelling unit gated apartment complex on 9.5 acre site		
City:	County of San Bernardino / Unincorporated Redlands		
Project Buildout Year:	2020	**Ambient Growth Rate per Year:**	SBTAM
Closest Intersection (Xtn) to the Project			
Xtn N/S Street Name:	Between California Street and Nevada Street		
Xtn E/W Street Name:	Lugonia Avenue		
Thomas Guide Pg+Grid:	607G5	**County Supervisorial District:**	3

	Engineer	**Developer**
Company:	GANDDINI GROUP, INC.	West Grove 9.5, LLC
Name:	Ms. Perrie Ilercil, P.E., (AZ)	Mr. Jim Mauge
Address:	550 Parkcenter Drive, Suite 202	PO Box 9716
City, State, Zip Code:	Santa Ana, CA 92705	Redlands, CA 92375
Phone #:	714-795-3100 EXT 103	310-722-8692
CELL:	949-257-3126 cell	
Email:	perrie@ganddini.com	JimMauge@GMAIL.com

08.30.2019
02.26.2019
01.21.2019
08.10.2018

By: **Reviewed By:**

Print Name: Perrie Ilercil **Print Name:**

Consultant/Developer's Representative **Date** **Traffic Division Representative** **Date**

SCOPE FOR TRAFFIC STUDY

Project Name:	Westgrove Apartment Project (**P201900171**)

1. **Traffic Distribution**: Please insert or attach Figure(s) illustrating project trip distribution in percentages and volumes at the study intersections analyzed.
   See Figures:
   - Figure 1 Project Location Map,
   - Figure 2 Site Plan
   - Figures 3 to 6 Project Trip Distribution

2. Trip Credit: Exact amount of credit subject to approval by Traffic Division.

Transportation Demand Management (TDM)	Yes/**no**	NO
Existing Active Land Use	Yes/**no**	NA
Previous Land Use	Yes/**no**	Agriculture
Internal Trip Reduction	Yes/**no**	NO
Pass-by Trip Reduction	Yes/**no**	NO

3. Related Projects: Consultant should check with Planning in the San Bernardino County Department of Land Use Services and planning departments of adjoining Cities. Documentation of the consultation from these agencies shall be included in the traffic study. Related projects list shall be submitted to Traffic Division for our review and approval before being incorporated in the study.

4. Freeway Analysis: The potential traffic impact on the following Freeway(s) must be considered.

Analysis at the I-10 Freeway Ramps at California Street will be performed, but the project will not generate the number of trips which would require further mainline analysis.

The applicant shall consult with the State of California Department of Transportation (Caltrans) to determine the California Environmental Quality Act levels of significance with regard to traffic impacts on Caltrans' freeway facilities. This consultation shall also include a determination of Caltrans requirements for the study of traffic impacts to its facilities and the mitigation of any such impacts. This analysis must follow the most current Caltrans' Guide for the Preparation of Traffic Impact Studies (December 2002) and can be obtained from http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tiguide.pdf. If Caltrans finds that the project has a significant impact on the freeway, Caltrans shall be requested to include the basis for this finding in their response. If fees are proposed to mitigate the freeway impact, Caltrans shall be requested to identify the specific project to which the fees will apply. These written comments from Caltrans shall be included with the traffic study and submitted to Public Works for review and approval. If a documented good faith effort is made to consult with Caltrans and written comments cannot be obtained from within a reasonable amount of time, an analysis of the freeway impact shall be made using HCM procedures. Appendix A of the SANBAG CMP outlines allowable modifications to these procedures. The SANBAG CMP can be viewed online at: http://www.sanbag.ca.gov/planning/subr_congestion.html

SCOPE FOR TRAFFIC STUDY

Project Name:	Westgrove Apartment Project (**P201900171**)

5. Trip Generation

Trip Generation Rate(s) Source: ITE Trip Generation	**I – Institute of Transportation Engineers; S – San Diego Traffic Generators; C – County; O – Other:**	**Edition:**	10th 2017

Land Use Code	**Land Use**	**Rate Based on**	**Qty**	**Average Vehicle Trip Ends vs**	**ADT**	Weekday a.m. peak		Weekday p.m. peak		Weekend peak hour	
						In	Out	In	Out	In	Out
221	Mid-Rise Apartment (3 Floors) residential buildings are 3 stories	ITE	282		1,534	26	76	76	48	67	97

For ITE Land Uses provide number and name of Land Use. e.g. LU 814 - Variety Store

SCOPE FOR TRAFFIC STUDY

Project Name:	Westgrove Apartment Project (**P201900171**)

6. Study Intersections: At minimum, the study shall include the following intersections. The list is subject to change after related projects, trip generation and distribution are determined. Consultant should check with adjoining Cities regarding their requirements in addition to the following County/City intersections. Documentation of the consultation from these agencies shall be included in the traffic study.

Xtn #	% County	Thomas Guide Page+Grid	N/S/E/W Street Name	City	Signalized	CMP
1	0	607G5	California Street (NS) at: Lugonia Avenue (EW)	Redlands	YES	no
2	0	607F6	California Street (NS) at: I-10 Freeway WB Ramps (EW)	Caltrans	YES	YES
3	0	607F6	California Street (NS) at: I-10 Freeway EB Ramps (EW)	Caltrans	YES	YES
4	100	607G5	Project West Access (NS) at: Lugonia Avenue (EW)	County	no	no
5	100	607G5	Project East Access (NS) at: Lugonia Avenue (EW)	County	no	no
6	100	607G5	Nevada Street (NS) at: Project North Access (EW)	County	no	no
7	50	607G5	Nevada Street (NS) at: Lugonia Avenue (EW)	Redlands/ County	no	no

Cites to be consulted: City of Redlands

Project Name:	Westgrove Apartment Project (P2018 tbd)

7. Other:

Traffic counts may be conducted immediately per the following:
• Must be taken on Tuesdays, Wednesdays or Thursdays.
• Must exclude holidays, and the first weekdays before and after the holiday.
• Must be taken on days when local schools or colleges are in session.
• Must be taken on days of good weather, and avoid atypical conditions (e.g., road construction, detours, or major traffic incidents).
• Traffic counts used for other traffic studies in the area shall **NOT** be reused again, unless 25% of the counts conducted for that particular traffic study are validated with new counts. The difference in volumes between the old and new counts at each corresponding movement should not be more than 10%.
• New traffic counts shall be checked to ensure the difference in volumes at corresponding approaches, if applicable, between two adjacent intersections is no more than 10% unless the difference can be justified.
• For all proposed mitigation measures, a conceptual plan for the improvements shall be submitted to our Traffic Studies section for review and approval prior to the approval of the Traffic Impact Analysis. All proposed improvements shall be within the right-of-way.
• For all cumulative mitigation measures, a cost estimate for the improvement shall be submitted.

This analysis must follow the most current Traffic Impact Study Guidelines for the County as stated in the County's Road Planning and Design Standards.

8. Fees

The County charges on an actual cost basis for review of traffic studies. An initial deposit of $3400 is required at the time that a land use application is filed with the Department of Land Use Services If the review costs exceed the initial deposit, the applicant will be expected to provide additional funds and the review will be suspended until the additional funds are deposited.

9. Contact Information:

Please submit a signed copy of this scope for approval by the Traffic Division. Draft scopes may be sent electronically. Final scope with signature should be submitted in person or by US Mail to:

County of San Bernardino
Dept. of Public Works, Traffic Division
825 E. 3rd Street, Rm 115
San Bernardino, CA 92415-0835

909-387-8239

Anthony Pham
Anthony.Pham@lus.sbcounty.gov

Jeremy Johnson
Jeremy.Johnson@dpw.sbcounty.gov

PROJECT DESCRIPTION

The 9.5 acre project site is located immediately west of "The Redlands" project site, which is located at the northwest corner of Nevada Street and Lugonia Avenue in the County of San Bernardino.

The proposed Westgrove Apartment Project involves construction of a gated mid-rise apartment complex with 282 dwelling units. Multiple gated accesses are proposed including a full access main entry for residents and visitors and restricted access residential gates. The project will have reciprocal access agreement for parking and gate access to the easterly adjacent property (The Redlands). The proposed project is anticipated to be constructed and fully operational by year 2020.

PROJECT ACCESS

Three (3) gated access driveways are proposed. The main entrance to the apartments on West Lugonia Avenue is proposed as a full access gated driveway. The gated access to residents is beyond the leasing and visitor parking area. The secondary access on West Lugonia Avenue is proposed as a restricted exit-only gated driveway. The third access driveway is on the adjacent complex property east of the parking structure with access to Nevada Street. This third driveway is proposed as a full access gated driveway.

The proposed, Westgrove Apartment project and the adjacent property, "The Redlands" apartment complex have reciprocal access agreement for parking and gate access. There are two reciprocal access gates on the property line between the two projects.

PROJECT RECIPRICAL ACCESS AND DISTRIBUTION

The majority of the Westgrove Apartment distribution will access the gated driveways on Lugonia Avenue via the main entry/exit gate and the secondary exit gate. A smaller percentage of the distribution is routed through the Redlands parking structure to Nevada Street which is representative of the percentage of the parking spaces for the complex in the parking structure.

The Westgrove Apartment project proposes to provide 465 on-site parking spaces plus 95[1] shared parking spaces with the easterly adjacent The Redlands apartment complex. Therefore, the percentage of the Westgrove Apartment trips directed through the parking structure is roughly 17% which is representative of the percentage of the parking spaces for the complex in the parking structure.

Trip contributions from the adjacent project will be included in the analysis as other development for "Future" reciprocal access and General Buildout scenarios.

PROJECT PHASING

For the purposes of this traffic impact analysis, the proposed project is anticipated to be built in one continuous phase. The proposed project is anticipated to be constructed and fully operational by year 2020. Since the Redlands Apartment complex, has a different construction timeline, an alternative analysis for the proposed "Future" reciprocal access to the parking structure of the adjacent property is also provided for Year 2022.

[1] San Bernardino County Land Use Services Department has reviewed and approved the 3 projects to the east with parking ratios below the countywide standard based on the provided existing parking survey data and the proposed parking per dwelling and parking per bedroom calculations provided. With the proposed shared parking spaces of the Redlands parking structure with Westgrove Apartments, both complexes will provide parking which exceeds the suggested parking ratio of 1.8 spaces per dwelling unit as well as 1.21 parking spaces per bedroom noted in the parking and density analysis survey data.

Table 1
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use	Source[1]	Unit[2]	% In	% Out	Rate	% In	% Out	Rate	Rate
Multi-family Residential (Mid-Rise)	ITE 221	DU	26%	74%	0.36	61%	39%	0.44	5.44

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity[3]	Unit[2]	In	Out	Total	In	Out	Total	Daily
Multi-family Residential (Mid-Rise)	282	DU	26	76	102	76	48	124	1,534

Easterly Adjacent Future Development (The Redlands) Trips Distributed at Project East Access									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity[4]	Unit[2]	In	Out	Total	In	Out	Total	Daily
Reciprocal Trips Generated by The Redlands	90	DU	8	24	32	24	16	40	490

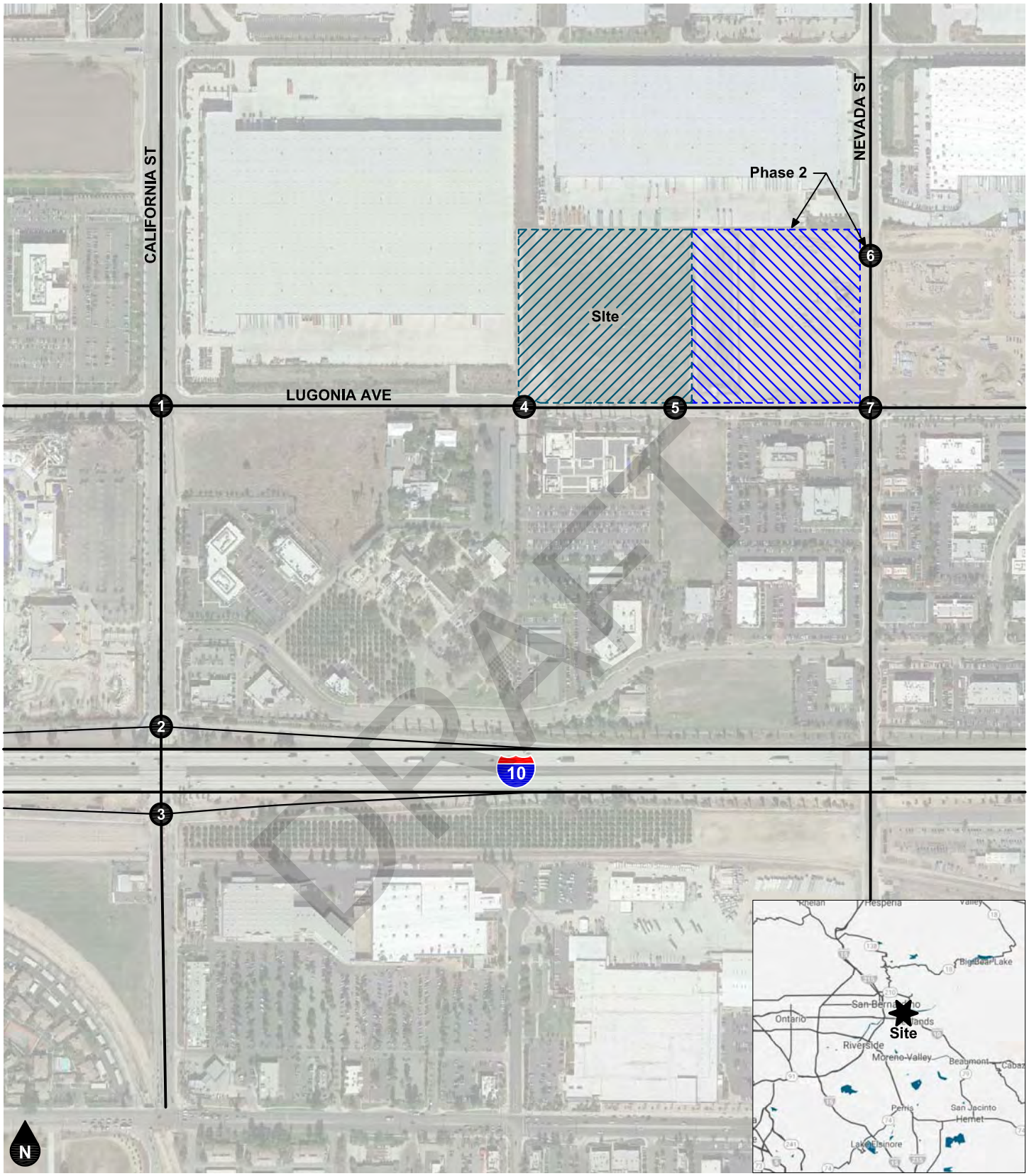
Notes:

(1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; ### = Land Use Code

(2) DU = Dwelling Units

(3) Source: Site Plan, dated August 12, 2019.

(4) Adjacent future development (The Redlands) trips included in future Year 2022 and General Plan Buildout scenarios. Trips based on 25% distribution of adjacent future development through the primary project access at Lugonia Avenue.

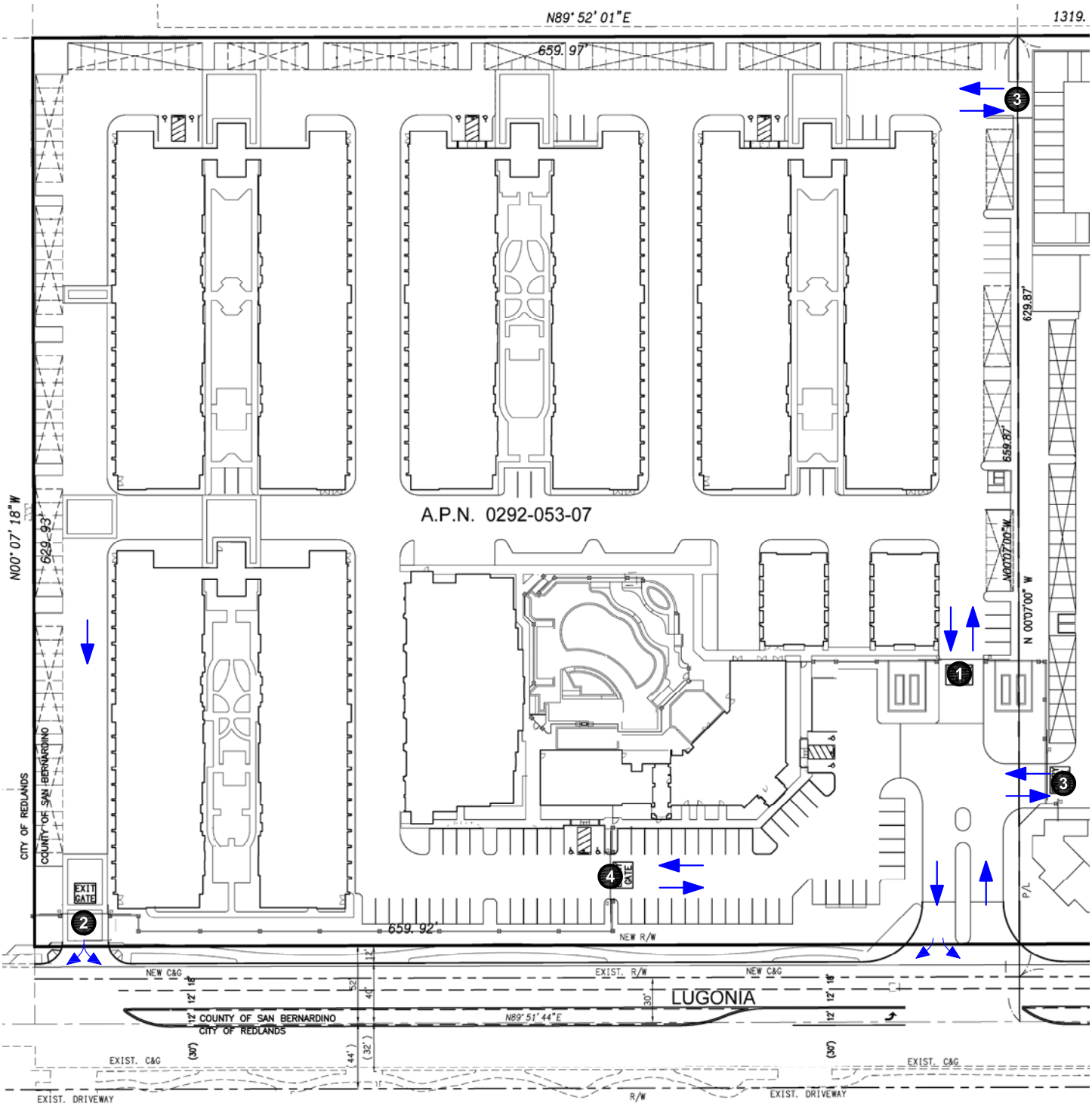


DRAFT

Legend

- # Study Intersection
- Site
- Adjacent Project

Figure 1
Project Location Map

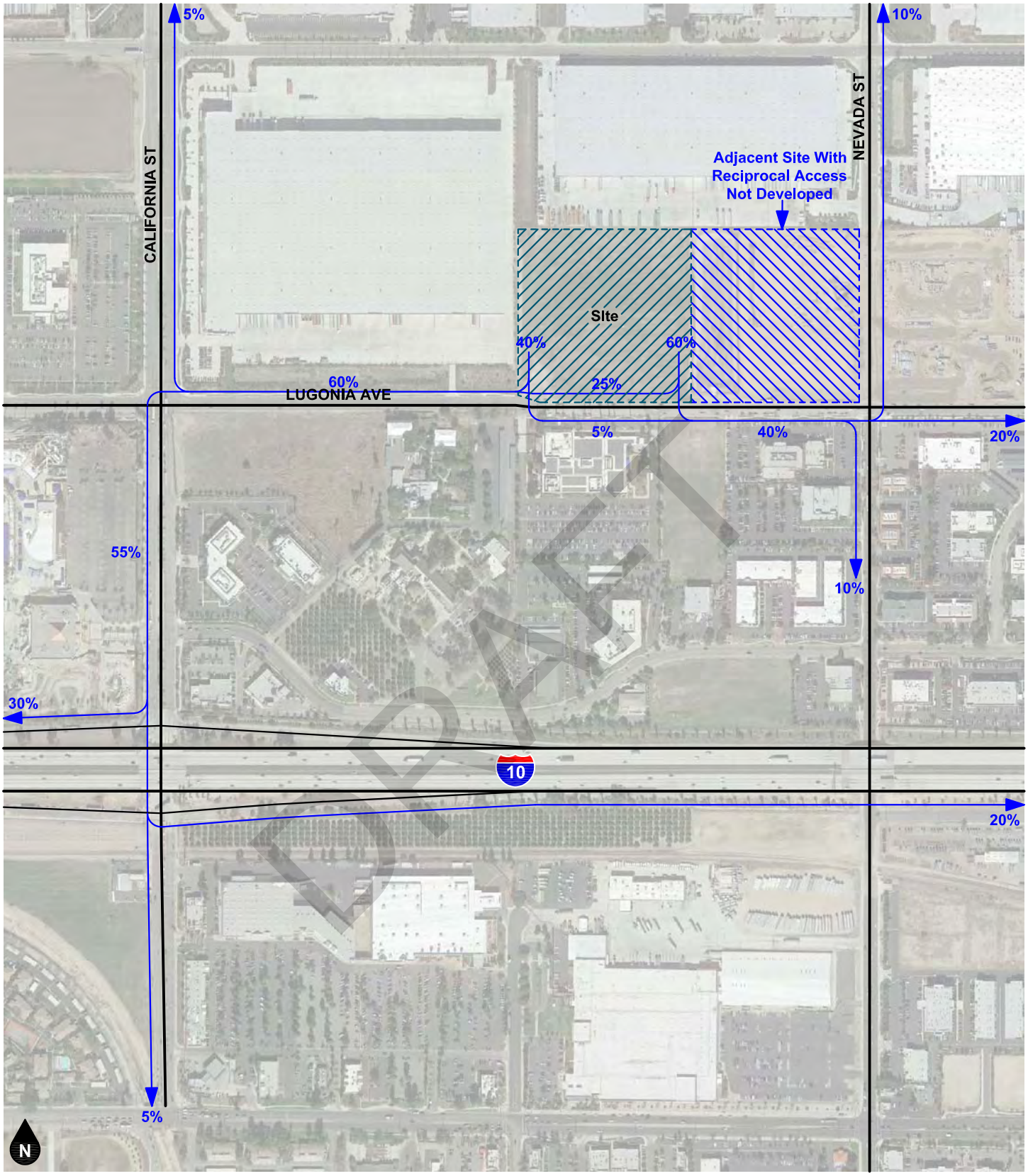


N

Legend

1. Main Full Access Gate (Resident/Guest) (1-Left and 1-Right)
2. Secondary Exit Only (1-Shared Left-Right)
3. Reciprocal Access Gate (Phase 2)
4. Residential Gate

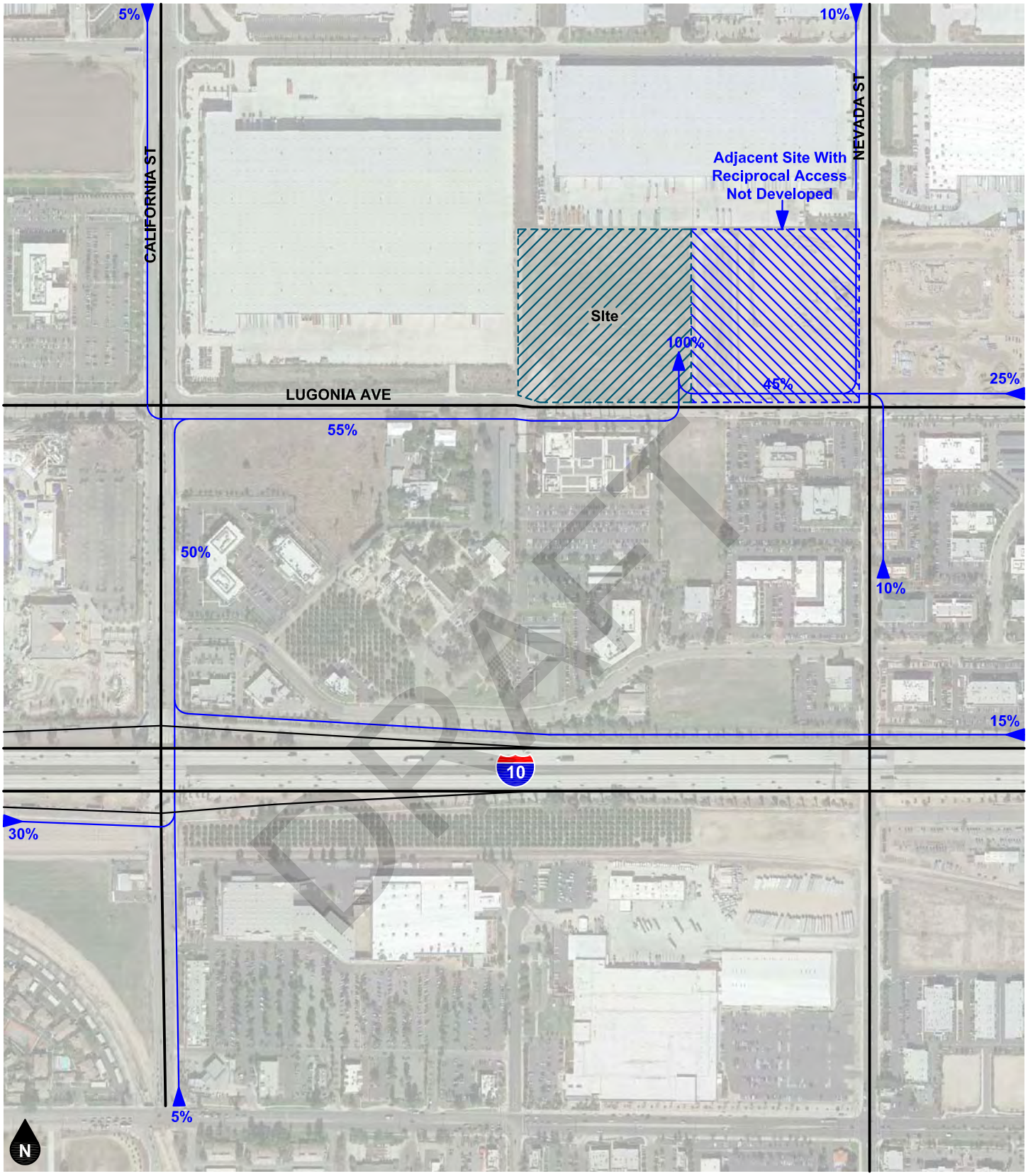
Figure 2
Site Plan



Legend

10% Percent From Project

Figure 15
Project Outbound Trip Distribution - Opening Year (2020)



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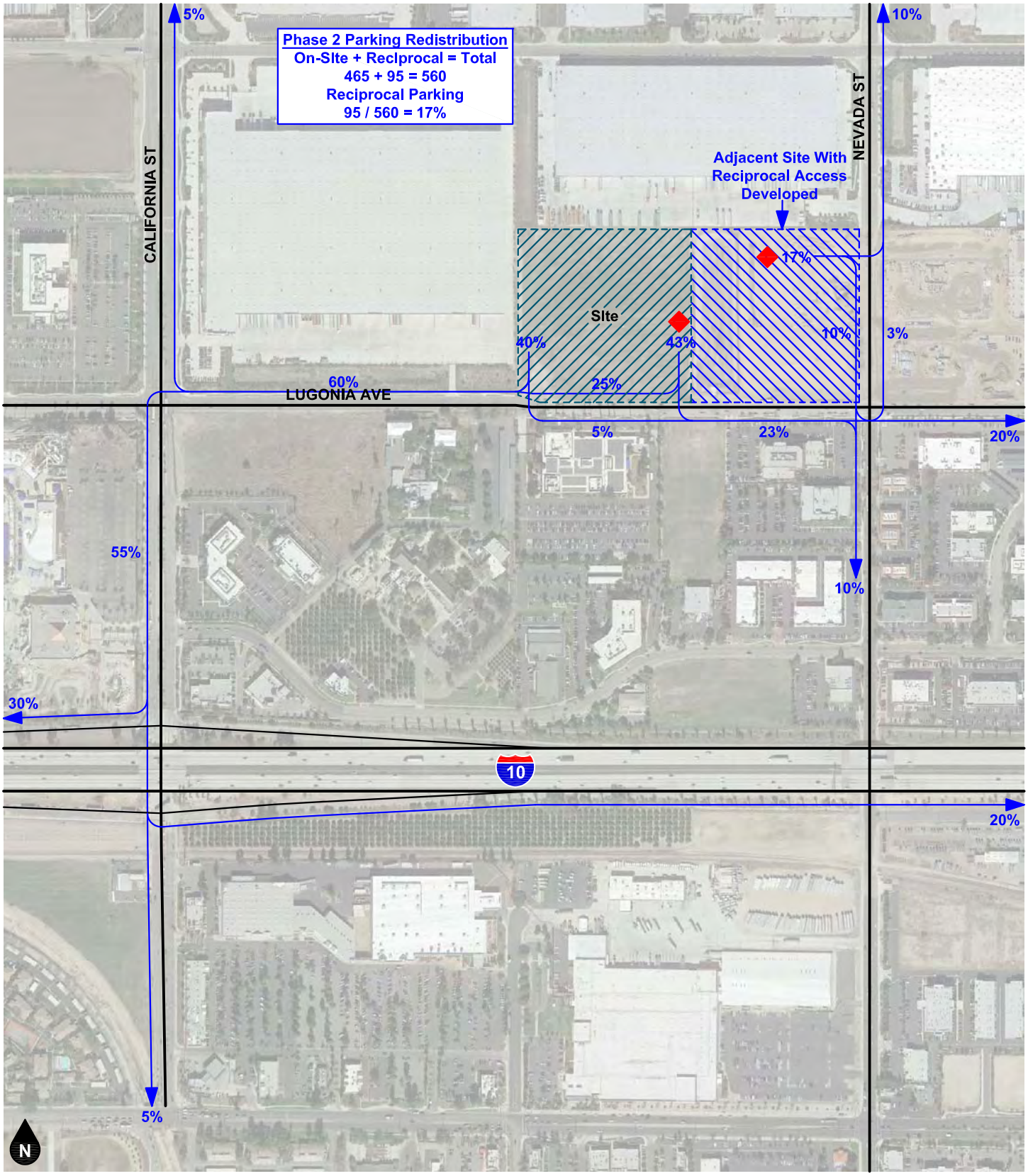
10% Percent To Project

Figure 16
Project Inbound Trip Distribution - Opening Year (2020)



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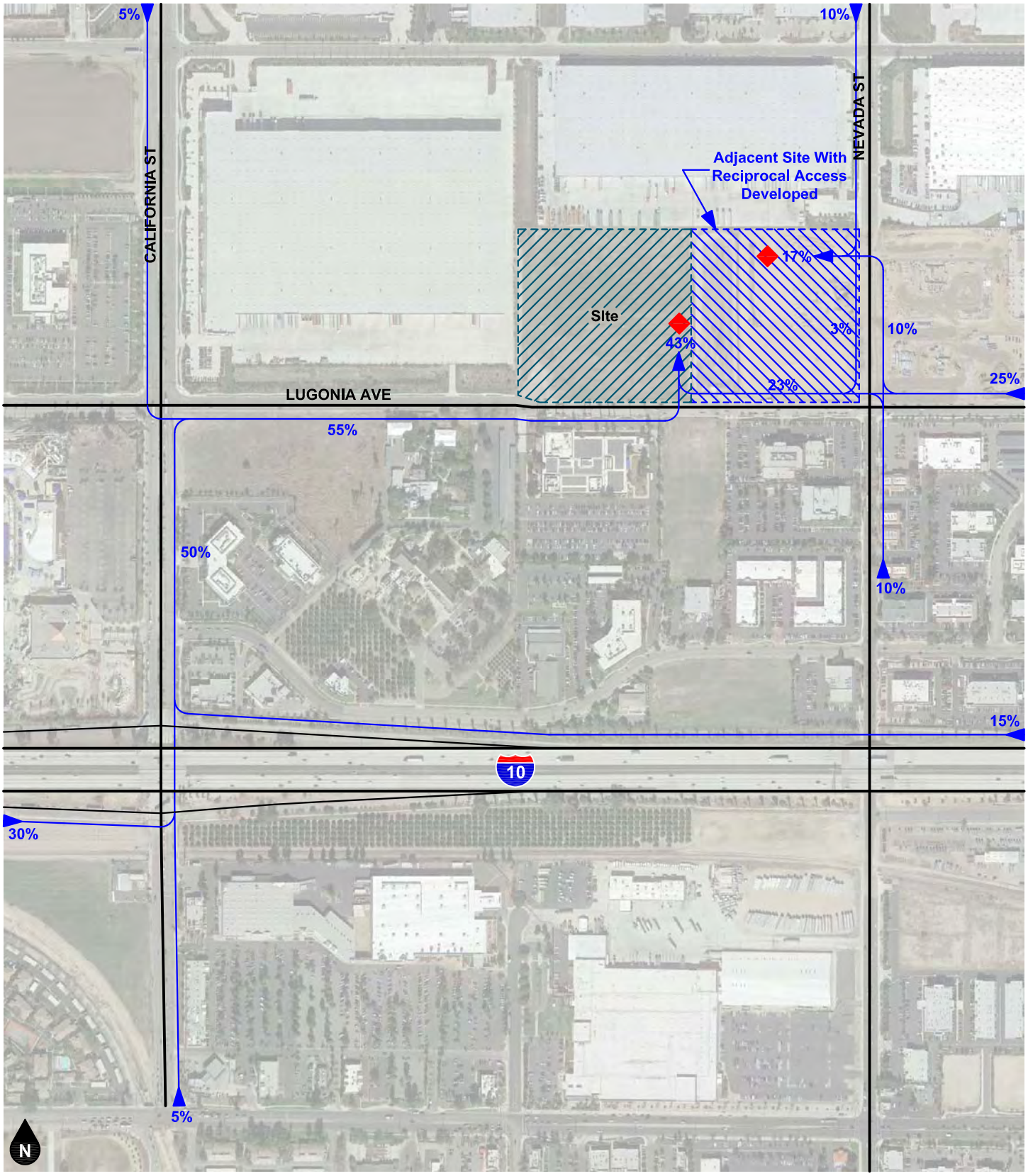
10% Percent From Project

Adjacent Project Trips Included in "Phase 2" Reciprocal Access and General Plan Buildout Scenarios

Figure 17
Project Outbound Trip Distribution
-Year 2022 With Reciprocal Access



Legend

10% Percent To Project

Adjacent Project Trips Included in "Phase 2" Reciprocal Access and General Plan Buildout Scenarios

Figure 18
Project Inbound Trip Distribution
- Year 2022 With Reciprocal Access

APPENDIX C

VOLUME COUNT WORKSHEETS

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Redlands
N/S: California Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 01_RED_California_Lugonia AM
Site Code : 07518579
Start Date : 8/14/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	22	1	26	12	13	8	33	32	98	22	152	2	8	17	27	238
07:15 AM	1	26	1	28	11	16	13	40	39	109	20	168	0	2	10	12	248
07:30 AM	6	37	3	46	18	25	13	56	39	82	17	138	0	3	20	23	263
07:45 AM	3	37	1	41	22	14	11	47	42	97	26	165	0	4	19	23	276
Total	13	122	6	141	63	68	45	176	152	386	85	623	2	17	66	85	1025
08:00 AM	11	47	3	61	20	15	6	41	51	96	25	172	2	2	15	19	293
08:15 AM	6	25	2	33	11	16	11	38	62	100	22	184	0	4	21	25	280
08:30 AM	12	44	3	59	11	22	15	48	43	104	18	165	1	4	16	21	293
08:45 AM	7	55	3	65	17	10	7	34	54	92	20	166	0	4	19	23	288
Total	36	171	11	218	59	63	39	161	210	392	85	687	3	14	71	88	1154
Grand Total	49	293	17	359	122	131	84	337	362	778	170	1310	5	31	137	173	2179
Apprch %	13.6	81.6	4.7		36.2	38.9	24.9		27.6	59.4	13		2.9	17.9	79.2		
Total %	2.2	13.4	0.8	16.5	5.6	6	3.9	15.5	16.6	35.7	7.8	60.1	0.2	1.4	6.3	7.9	
Passenger Vehicles	45	205	16	266	117	127	79	323	329	670	166	1165	2	29	105	136	1890
% Passenger Vehicles	91.8	70	94.1	74.1	95.9	96.9	94	95.8	90.9	86.1	97.6	88.9	40	93.5	76.6	78.6	86.7
Large 2 Axle Vehicles	2	15	0	17	1	2	2	5	11	8	2	21	1	2	9	12	55
% Large 2 Axle Vehicles	4.1	5.1	0	4.7	0.8	1.5	2.4	1.5	3	1	1.2	1.6	20	6.5	6.6	6.9	2.5
3 Axle Vehicles	0	9	0	9	0	2	0	2	5	13	2	20	0	0	5	5	36
% 3 Axle Vehicles	0	3.1	0	2.5	0	1.5	0	0.6	1.4	1.7	1.2	1.5	0	0	3.6	2.9	1.7
4+ Axle Trucks	2	64	1	67	4	0	3	7	17	87	0	104	2	0	18	20	198
% 4+ Axle Trucks	4.1	21.8	5.9	18.7	3.3	0	3.6	2.1	4.7	11.2	0	7.9	40	0	13.1	11.6	9.1

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	11	47	**3**	61	**20**	15	6	41	51	96	**25**	172	**2**	2	15	19	**293**
08:15 AM	6	25	2	33	11	16	11	38	**62**	100	22	**184**	0	**4**	**21**	**25**	280
08:30 AM	**12**	44	3	59	11	**22**	**15**	**48**	43	**104**	18	165	1	4	16	21	293
08:45 AM	7	**55**	3	**65**	17	10	7	34	54	92	20	166	0	4	19	23	288
Total Volume	36	171	11	218	59	63	39	161	210	392	85	687	3	14	71	88	1154
% App. Total	16.5	78.4	5		36.6	39.1	24.2		30.6	57.1	12.4		3.4	15.9	80.7		
PHF	.750	.777	.917	.838	.738	.716	.650	.839	.847	.942	.850	.933	.375	.875	.845	.880	.985

Counts Unlimited
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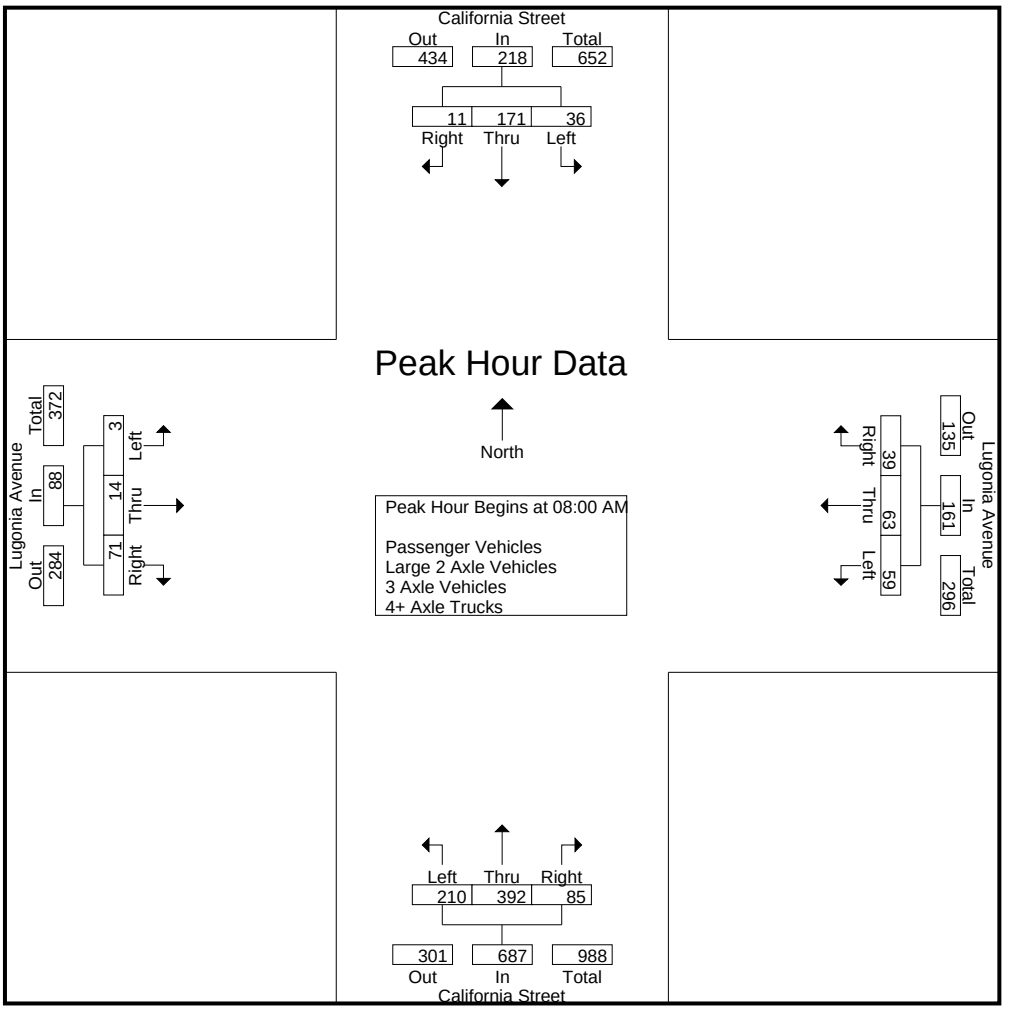
City of Redlands
N/S: California Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 01_RED_California_Lugonia AM
Site Code : 07518579
Start Date : 8/14/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				07:15 AM				08:00 AM				07:30 AM			
+0 mins.	11	47	**3**	61	11	16	**13**	40	51	96	**25**	172	0	3	20	23
+15 mins.	6	25	2	33	18	**25**	13	**56**	**62**	100	22	**184**	0	**4**	19	23
+30 mins.	**12**	44	3	59	**22**	14	11	47	43	**104**	18	165	**2**	2	15	19
+45 mins.	7	**55**	3	**65**	20	15	6	41	54	92	20	166	0	4	**21**	**25**
Total Volume	36	171	11	218	71	70	43	184	210	392	85	687	2	13	75	90
% App. Total	16.5	78.4	5		38.6	38	23.4		30.6	57.1	12.4		2.2	14.4	83.3	
PHF	.750	.777	.917	.838	.807	.700	.827	.821	.847	.942	.850	.933	.250	.813	.893	.900

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Groups Printed- Passenger Vehicles

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	3	12	1	16	11	12	8	31	27	84	20	131	0	7	12	19	197
07:15 AM	1	18	1	20	10	16	13	39	37	97	20	154	0	2	7	9	222
07:30 AM	6	26	3	35	18	23	13	54	33	72	17	122	0	3	13	16	227
07:45 AM	3	25	0	28	21	13	9	43	40	83	24	147	0	4	13	17	235
Total	13	81	5	99	60	64	43	167	137	336	81	554	0	16	45	61	881
08:00 AM	10	37	3	50	20	15	4	39	48	83	25	156	2	2	15	19	264
08:15 AM	5	20	2	27	10	16	11	37	59	89	22	170	0	4	17	21	255
08:30 AM	10	28	3	41	11	22	14	47	37	87	18	142	0	3	12	15	245
08:45 AM	7	39	3	49	16	10	7	33	48	75	20	143	0	4	16	20	245
Total	32	124	11	167	57	63	36	156	192	334	85	611	2	13	60	75	1009
Grand Total	45	205	16	266	117	127	79	323	329	670	166	1165	2	29	105	136	1890
Apprch %	16.9	77.1	6		36.2	39.3	24.5		28.2	57.5	14.2		1.5	21.3	77.2		
Total %	2.4	10.8	0.8	14.1	6.2	6.7	4.2	17.1	17.4	35.4	8.8	61.6	0.1	1.5	5.6	7.2	

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**10**	37	**3**	**50**	**20**	15	4	39	48	83	**25**	156	**2**	2	15	19	**264**
08:15 AM	5	20	2	27	10	16	11	37	**59**	**89**	22	**170**	0	**4**	**17**	**21**	255
08:30 AM	10	28	3	41	11	**22**	**14**	**47**	37	87	18	142	0	3	12	15	245
08:45 AM	7	**39**	3	49	16	10	7	33	48	75	20	143	0	4	16	20	245
Total Volume	32	124	11	167	57	63	36	156	192	334	85	611	2	13	60	75	1009
% App. Total	19.2	74.3	6.6		36.5	40.4	23.1		31.4	54.7	13.9		2.7	17.3	80		
PHF	.800	.795	.917	.835	.713	.716	.643	.830	.814	.938	.850	.899	.250	.813	.882	.893	.955

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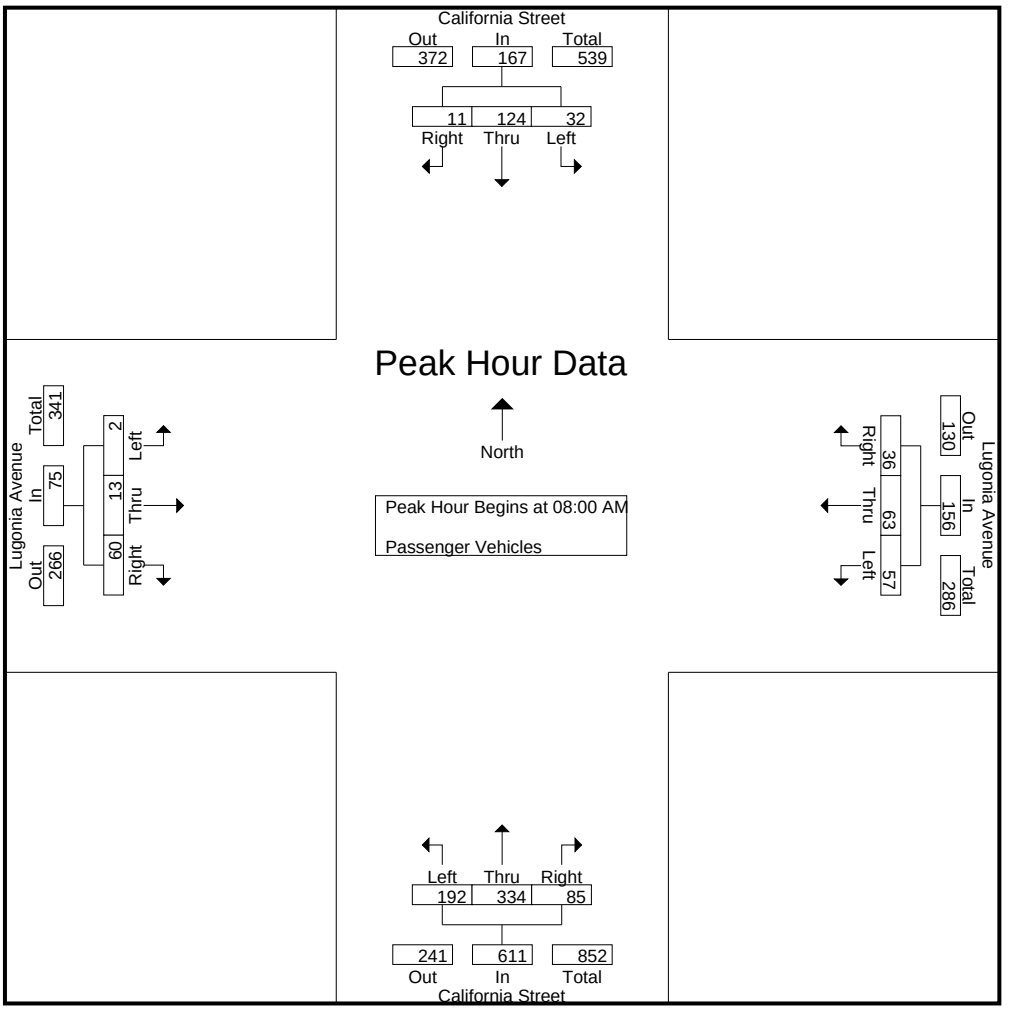

Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:00 AM				08:00 AM			
+0 mins.	**10**	37	**3**	**50**	**20**	15	4	39	48	83	**25**	156	**2**	2	15	19
+15 mins.	5	20	2	27	10	16	11	37	**59**	**89**	22	**170**	0	**4**	**17**	**21**
+30 mins.	10	28	3	41	11	**22**	**14**	**47**	37	87	18	142	0	3	12	15
+45 mins.	7	**39**	3	49	16	10	7	33	48	75	20	143	0	4	16	20
Total Volume	32	124	11	167	57	63	36	156	192	334	85	611	2	13	60	75
% App. Total	19.2	74.3	6.6		36.5	40.4	23.1		31.4	54.7	13.9		2.7	17.3	80	
PHF	.800	.795	.917	.835	.713	.716	.643	.830	.814	.938	.850	.899	.250	.813	.882	.893

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E/W: Lugonia Avenue
Weather: Clear

File Name : 01_RED_California_Lugonia AM
Site Code : 07518579
Start Date : 8/14/2018
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Groups Printed- Large 2 Axle Vehicles

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	3	0	3	0	1	0	1	1	0	2	3	1	1	2	4	11
07:15 AM	0	2	0	2	0	0	0	0	2	1	0	3	0	0	1	1	6
07:30 AM	0	0	0	0	0	1	0	1	2	1	0	3	0	0	2	2	6
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
Total	0	5	0	5	0	2	0	2	5	2	2	9	1	1	7	9	25
08:00 AM	1	4	0	5	0	0	2	2	2	2	0	4	0	0	0	0	11
08:15 AM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	1	1	4
08:30 AM	1	2	0	3	0	0	0	0	4	2	0	6	0	1	0	1	10
08:45 AM	0	2	0	2	1	0	0	1	0	1	0	1	0	0	1	1	5
Total	2	10	0	12	1	0	2	3	6	6	0	12	0	1	2	3	30
Grand Total	2	15	0	17	1	2	2	5	11	8	2	21	1	2	9	12	55
Apprch %	11.8	88.2	0		20	40	40		52.4	38.1	9.5		8.3	16.7	75		
Total %	3.6	27.3	0	30.9	1.8	3.6	3.6	9.1	20	14.5	3.6	38.2	1.8	3.6	16.4	21.8	

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**1**	**4**	0	**5**	0	0	**2**	**2**	2	**2**	0	4	0	0	0	0	**11**
08:15 AM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	**1**	**1**	4
08:30 AM	1	2	0	3	0	0	0	0	**4**	2	0	**6**	0	**1**	0	1	10
08:45 AM	0	2	0	2	**1**	0	0	1	0	1	0	1	0	0	1	1	5
Total Volume	2	10	0	12	1	0	2	3	6	6	0	12	0	1	2	3	30
% App. Total	16.7	83.3	0		33.3	0	66.7		50	50	0		0	33.3	66.7		
PHF	.500	.625	.000	.600	.250	.000	.250	.375	.375	.750	.000	.500	.000	.250	.500	.750	.682

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City of Redlands
N/S: California Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 01_RED_California_Lugonia AM
Site Code : 07518579
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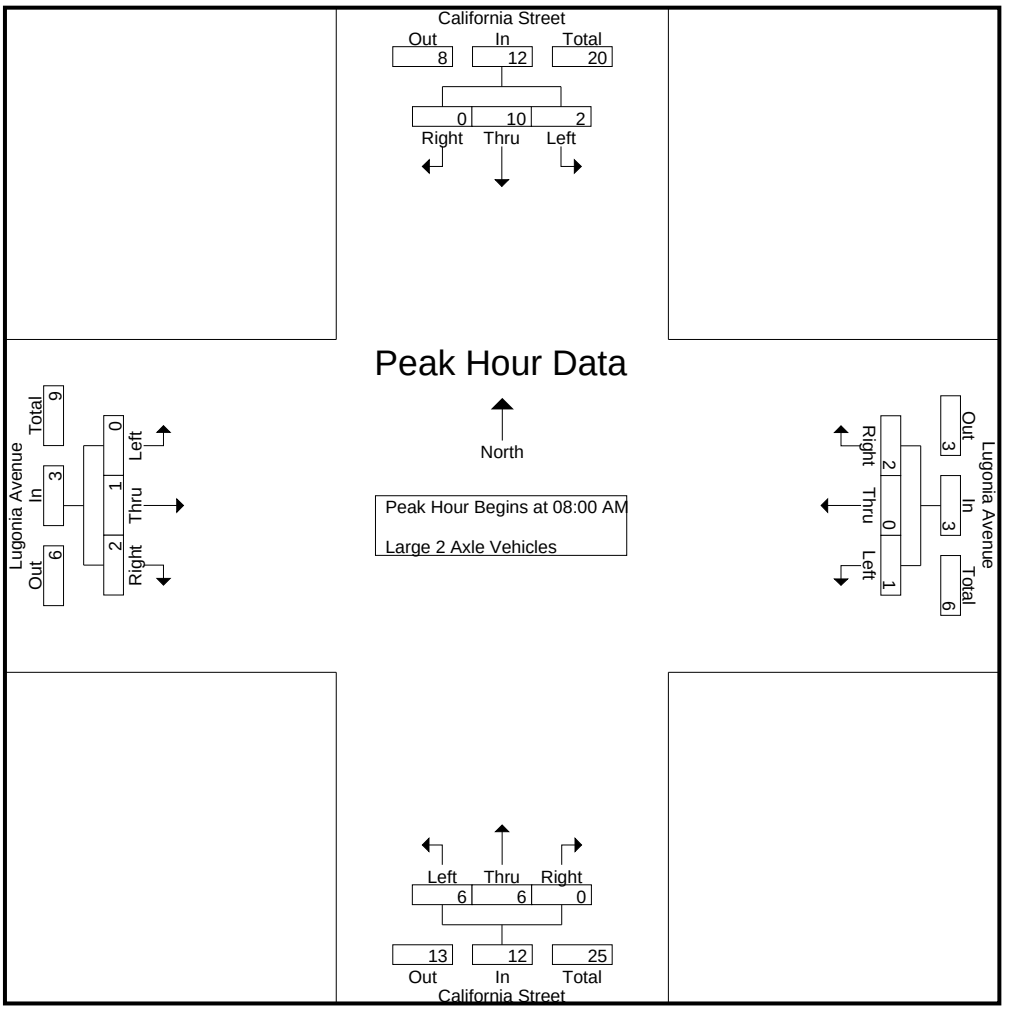

Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:00 AM				08:00 AM			
+0 mins.	**1**	**4**	0	**5**	0	0	**2**	**2**	2	**2**	0	4	0	0	0	0
+15 mins.	0	2	0	2	0	0	0	0	0	1	0	1	0	0	**1**	**1**
+30 mins.	1	2	0	3	0	0	0	0	**4**	2	0	**6**	0	**1**	0	1
+45 mins.	0	2	0	2	**1**	0	0	1	0	1	0	1	0	0	1	1
Total Volume	2	10	0	12	1	0	2	3	6	6	0	12	0	1	2	3
% App. Total	16.7	83.3	0		33.3	0	66.7		50	50	0		0	33.3	66.7	
PHF	.500	.625	.000	.600	.250	.000	.250	.375	.375	.750	.000	.500	.000	.250	.500	.750

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Groups Printed- 3 Axle Vehicles

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	1	3	0	4	0	0	1	1	5
07:15 AM	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
07:30 AM	0	2	0	2	0	1	0	1	1	0	0	1	0	0	1	1	5
07:45 AM	0	1	0	1	0	1	0	1	1	0	2	3	0	0	0	0	5
Total	0	6	0	6	0	2	0	2	3	4	2	9	0	0	2	2	19
08:00 AM	0	0	0	0	0	0	0	0	0	5	0	5	0	0	0	0	5
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	4	0	4	0	0	2	2	6
08:45 AM	0	3	0	3	0	0	0	0	1	0	0	1	0	0	0	0	4
Total	0	3	0	3	0	0	0	0	2	9	0	11	0	0	3	3	17
Grand Total	0	9	0	9	0	2	0	2	5	13	2	20	0	0	5	5	36
Apprch %	0	100	0		0	100	0		25	65	10		0	0	100		
Total %	0	25	0	25	0	5.6	0	5.6	13.9	36.1	5.6	55.6	0	0	13.9	13.9	

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	0	0	0	0	**5**	0	**5**	0	0	0	0	5
08:15 AM	0	0	0	0	0	0	0	0	**1**	0	0	1	0	0	1	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	4	0	4	0	0	**2**	**2**	**6**
08:45 AM	0	**3**	0	**3**	0	0	0	0	1	0	0	1	0	0	0	0	4
Total Volume	0	3	0	3	0	0	0	0	2	9	0	11	0	0	3	3	17
% App. Total	0	100	0		0	0	0		18.2	81.8	0		0	0	100		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.500	.450	.000	.550	.000	.000	.375	.375	.708

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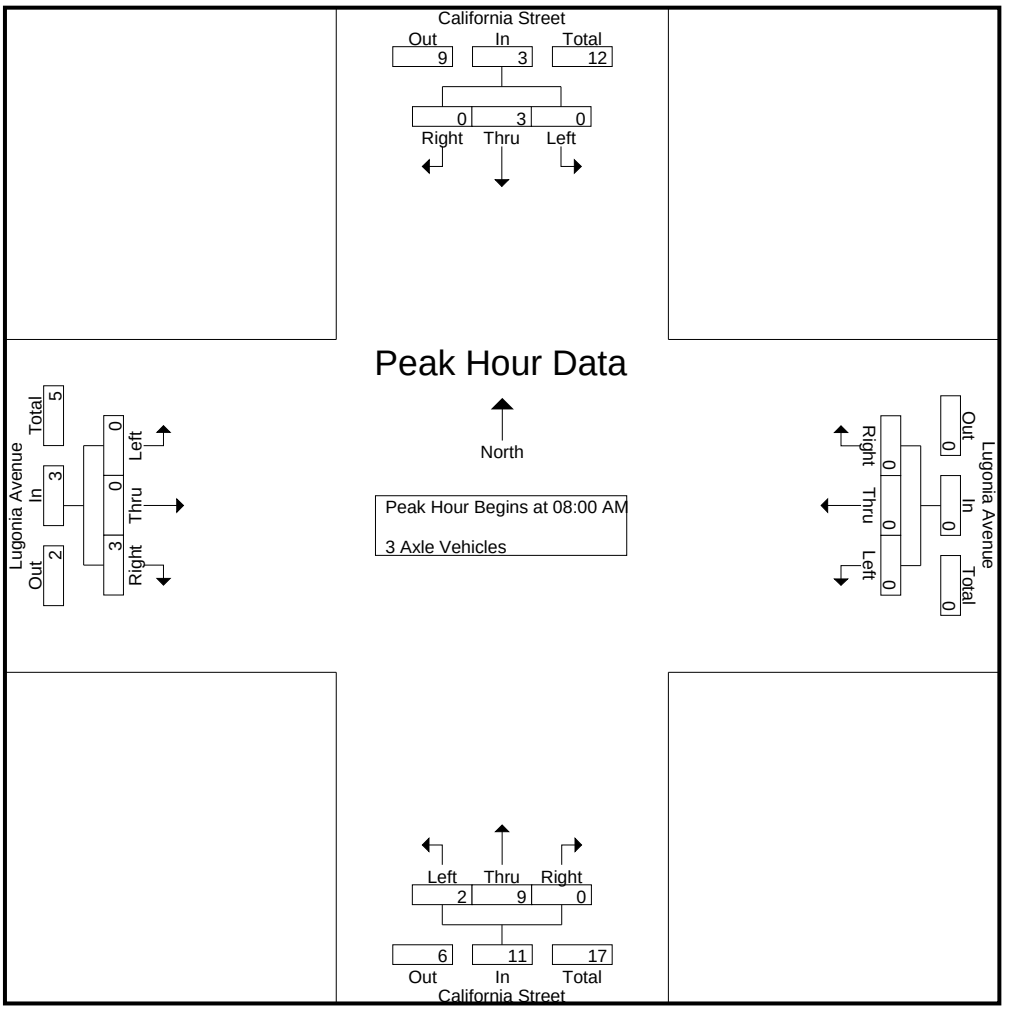

Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:00 AM				08:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	**5**	0	**5**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	**1**	0	0	1	0	0	1	1
+30 mins.	0	0	0	0	0	0	0	0	0	4	0	4	0	0	**2**	**2**
+45 mins.	0	**3**	0	**3**	0	0	0	0	1	0	0	1	0	0	0	0
Total Volume	0	3	0	3	0	0	0	0	2	9	0	11	0	0	3	3
% App. Total	0	100	0		0	0	0		18.2	81.8	0		0	0	100	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.500	.450	.000	.550	.000	.000	.375	.375

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Groups Printed- 4+ Axle Trucks

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	7	0	7	1	0	0	1	3	11	0	14	1	0	2	3	25
07:15 AM	0	3	0	3	1	0	0	1	0	10	0	10	0	0	2	2	16
07:30 AM	0	9	0	9	0	0	0	0	3	9	0	12	0	0	4	4	25
07:45 AM	0	11	1	12	1	0	2	3	1	14	0	15	0	0	4	4	34
Total	0	30	1	31	3	0	2	5	7	44	0	51	1	0	12	13	100
08:00 AM	0	6	0	6	0	0	0	0	1	6	0	7	0	0	0	0	13
08:15 AM	1	3	0	4	1	0	0	1	2	10	0	12	0	0	2	2	19
08:30 AM	1	14	0	15	0	0	1	1	2	11	0	13	1	0	2	3	32
08:45 AM	0	11	0	11	0	0	0	0	5	16	0	21	0	0	2	2	34
Total	2	34	0	36	1	0	1	2	10	43	0	53	1	0	6	7	98
Grand Total	2	64	1	67	4	0	3	7	17	87	0	104	2	0	18	20	198
Apprch %	3	95.5	1.5		57.1	0	42.9		16.3	83.7	0		10	0	90		
Total %	1	32.3	0.5	33.8	2	0	1.5	3.5	8.6	43.9	0	52.5	1	0	9.1	10.1	

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	6	0	6	0	0	0	0	1	6	0	7	0	0	0	0	13
08:15 AM	**1**	3	0	4	**1**	0	0	**1**	2	10	0	12	0	0	**2**	2	19
08:30 AM	1	**14**	0	**15**	0	0	**1**	1	2	11	0	13	**1**	0	2	**3**	32
08:45 AM	0	11	0	11	0	0	0	0	**5**	**16**	0	**21**	0	0	2	2	**34**
Total Volume	2	34	0	36	1	0	1	2	10	43	0	53	1	0	6	7	98
% App. Total	5.6	94.4	0		50	0	50		18.9	81.1	0		14.3	0	85.7		
PHF	.500	.607	.000	.600	.250	.000	.250	.500	.500	.672	.000	.631	.250	.000	.750	.583	.721

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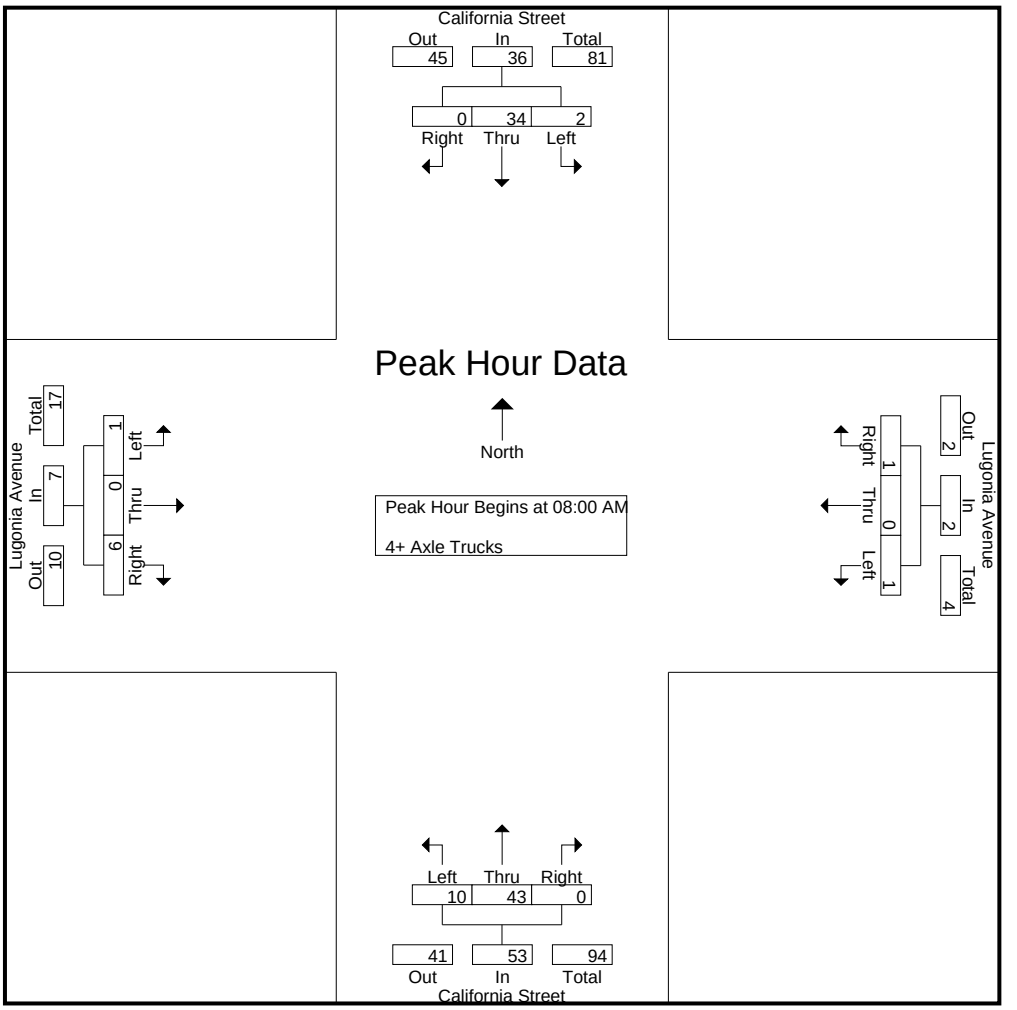

Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:00 AM				08:00 AM			
+0 mins.	0	6	0	6	0	0	0	0	1	6	0	7	0	0	0	0
+15 mins.	**1**	3	0	4	**1**	0	0	**1**	2	10	0	12	0	0	**2**	2
+30 mins.	1	**14**	0	**15**	0	0	**1**	1	2	11	0	13	**1**	0	2	**3**
+45 mins.	0	11	0	11	0	0	0	0	**5**	**16**	0	**21**	0	0	2	2
Total Volume	2	34	0	36	1	0	1	2	10	43	0	53	1	0	6	7
% App. Total	5.6	94.4	0		50	0	50		18.9	81.1	0		14.3	0	85.7	
PHF	.500	.607	.000	.600	.250	.000	.250	.500	.500	.672	.000	.631	.250	.000	.750	.583

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Site Code : 07518579
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	12	98	4	114	48	18	10	76	35	65	31	131	3	23	40	66	387
04:15 PM	8	104	2	114	33	7	7	47	28	60	28	116	0	16	52	68	345
04:30 PM	20	126	3	149	32	10	10	52	24	49	50	123	3	27	73	103	427
04:45 PM	19	116	6	141	29	19	10	58	28	60	44	132	1	23	44	68	399
Total	59	444	15	518	142	54	37	233	115	234	153	502	7	89	209	305	1558
05:00 PM	10	94	5	109	35	19	9	63	20	45	33	98	2	33	65	100	370
05:15 PM	14	94	4	112	38	14	16	68	22	59	41	122	0	26	48	74	376
05:30 PM	20	118	1	139	40	7	2	49	19	60	52	131	0	18	49	67	386
05:45 PM	13	85	4	102	35	14	9	58	25	50	40	115	3	11	42	56	331
Total	57	391	14	462	148	54	36	238	86	214	166	466	5	88	204	297	1463
Grand Total	116	835	29	980	290	108	73	471	201	448	319	968	12	177	413	602	3021
Apprch %	11.8	85.2	3		61.6	22.9	15.5		20.8	46.3	33		2	29.4	68.6		
Total %	3.8	27.6	1	32.4	9.6	3.6	2.4	15.6	6.7	14.8	10.6	32	0.4	5.9	13.7	19.9	
Passenger Vehicles	115	729	26	870	286	105	72	463	183	386	316	885	10	176	394	580	2798
% Passenger Vehicles	99.1	87.3	89.7	88.8	98.6	97.2	98.6	98.3	91	86.2	99.1	91.4	83.3	99.4	95.4	96.3	92.6
Large 2 Axle Vehicles	0	11	1	12	1	2	1	4	7	10	2	19	1	0	3	4	39
% Large 2 Axle Vehicles	0	1.3	3.4	1.2	0.3	1.9	1.4	0.8	3.5	2.2	0.6	2	8.3	0	0.7	0.7	1.3
3 Axle Vehicles	0	18	0	18	1	0	0	1	3	9	0	12	0	1	3	4	35
% 3 Axle Vehicles	0	2.2	0	1.8	0.3	0	0	0.2	1.5	2	0	1.2	0	0.6	0.7	0.7	1.2
4+ Axle Trucks	1	77	2	80	2	1	0	3	8	43	1	52	1	0	13	14	149
% 4+ Axle Trucks	0.9	9.2	6.9	8.2	0.7	0.9	0	0.6	4	9.6	0.3	5.4	8.3	0	3.1	2.3	4.9

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**20**	**126**	3	**149**	32	10	10	52	24	49	**50**	123	**3**	27	**73**	**103**	**427**
04:45 PM	19	116	**6**	141	29	**19**	10	58	**28**	**60**	44	**132**	1	23	44	68	399
05:00 PM	10	94	5	109	35	19	9	63	20	45	33	98	2	**33**	65	100	370
05:15 PM	14	94	4	112	**38**	14	**16**	**68**	22	59	41	122	0	26	48	74	376
Total Volume	63	430	18	511	134	62	45	241	94	213	168	475	6	109	230	345	1572
% App. Total	12.3	84.1	3.5		55.6	25.7	18.7		19.8	44.8	35.4		1.7	31.6	66.7		
PHF	.788	.853	.750	.857	.882	.816	.703	.886	.839	.888	.840	.900	.500	.826	.788	.837	.920

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City of Redlands
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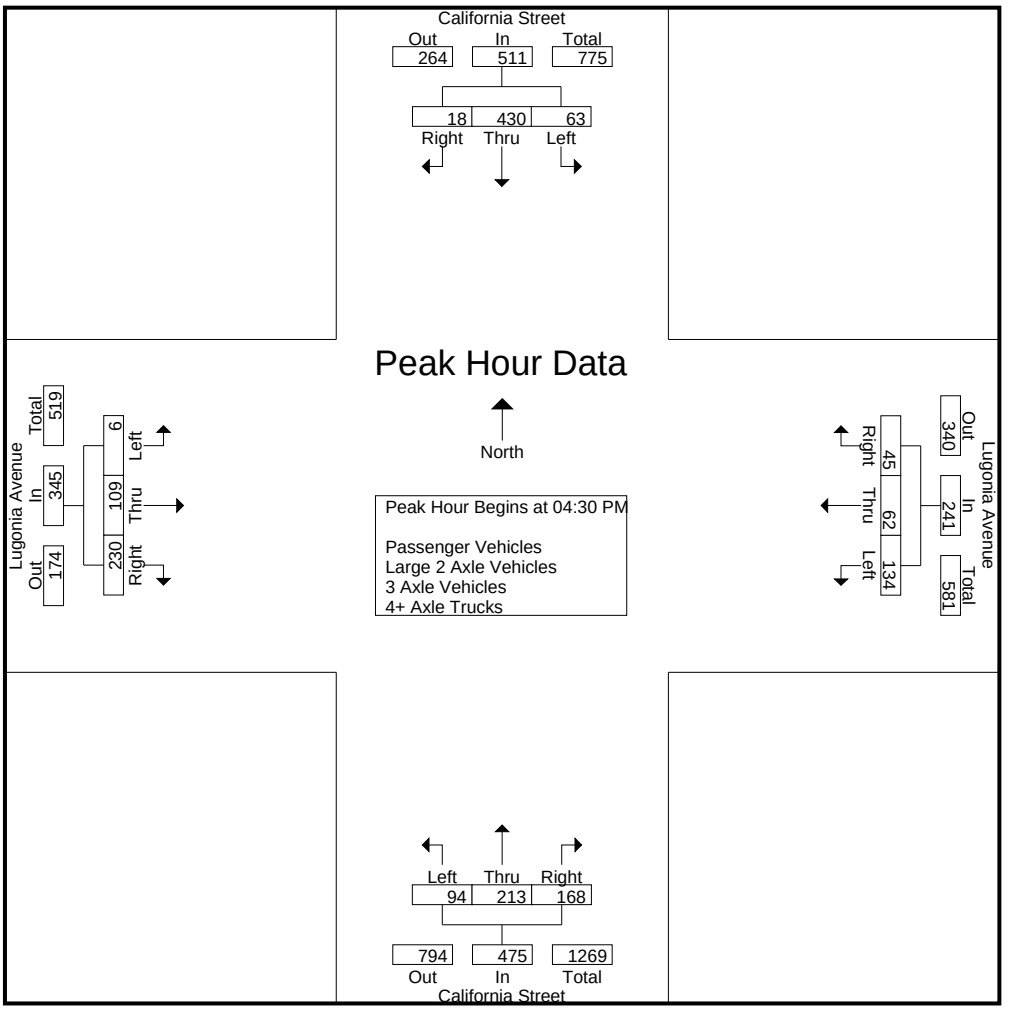

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:30 PM				04:00 PM				04:30 PM			
+0 mins.	12	98	4	114	32	10	10	52	**35**	**65**	31	131	**3**	27	**73**	**103**
+15 mins.	8	104	2	114	29	**19**	10	58	28	60	28	116	1	23	44	68
+30 mins.	**20**	**126**	3	**149**	35	19	9	63	24	49	**50**	123	2	**33**	65	100
+45 mins.	19	116	**6**	141	**38**	14	**16**	**68**	28	60	44	**132**	0	26	48	74
Total Volume	59	444	15	518	134	62	45	241	115	234	153	502	6	109	230	345
% App. Total	11.4	85.7	2.9		55.6	25.7	18.7		22.9	46.6	30.5		1.7	31.6	66.7	
PHF	.738	.881	.625	.869	.882	.816	.703	.886	.821	.900	.765	.951	.500	.826	.788	.837

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Weather: Clear

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Groups Printed- Passenger Vehicles

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	11	87	3	101	48	16	10	74	35	54	31	120	3	22	38	63	358
04:15 PM	8	88	2	98	33	7	7	47	22	44	28	94	0	16	50	66	305
04:30 PM	20	113	3	136	32	10	10	52	22	41	50	113	1	27	70	98	399
04:45 PM	19	98	5	122	29	19	10	58	26	53	44	123	1	23	41	65	368
Total	58	386	13	457	142	52	37	231	105	192	153	450	5	88	199	292	1430
05:00 PM	10	80	5	95	34	19	8	61	19	42	33	94	2	33	64	99	349
05:15 PM	14	86	4	104	38	14	16	68	18	54	40	112	0	26	45	71	355
05:30 PM	20	105	1	126	37	7	2	46	17	52	50	119	0	18	48	66	357
05:45 PM	13	72	3	88	35	13	9	57	24	46	40	110	3	11	38	52	307
Total	57	343	13	413	144	53	35	232	78	194	163	435	5	88	195	288	1368
Grand Total	115	729	26	870	286	105	72	463	183	386	316	885	10	176	394	580	2798
Apprch %	13.2	83.8	3		61.8	22.7	15.6		20.7	43.6	35.7		1.7	30.3	67.9		
Total %	4.1	26.1	0.9	31.1	10.2	3.8	2.6	16.5	6.5	13.8	11.3	31.6	0.4	6.3	14.1	20.7	

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**20**	**113**	3	**136**	32	10	10	52	22	41	**50**	113	1	27	**70**	98	**399**
04:45 PM	19	98	**5**	122	29	**19**	10	58	**26**	53	44	**123**	1	23	41	65	368
05:00 PM	10	80	5	95	34	19	8	61	19	42	33	94	**2**	**33**	64	**99**	349
05:15 PM	14	86	4	104	**38**	14	**16**	**68**	18	**54**	40	112	0	26	45	71	355
Total Volume	63	377	17	457	133	62	44	239	85	190	167	442	4	109	220	333	1471
% App. Total	13.8	82.5	3.7		55.6	25.9	18.4		19.2	43	37.8		1.2	32.7	66.1		
PHF	.788	.834	.850	.840	.875	.816	.688	.879	.817	.880	.835	.898	.500	.826	.786	.841	.922

Counts Unlimited
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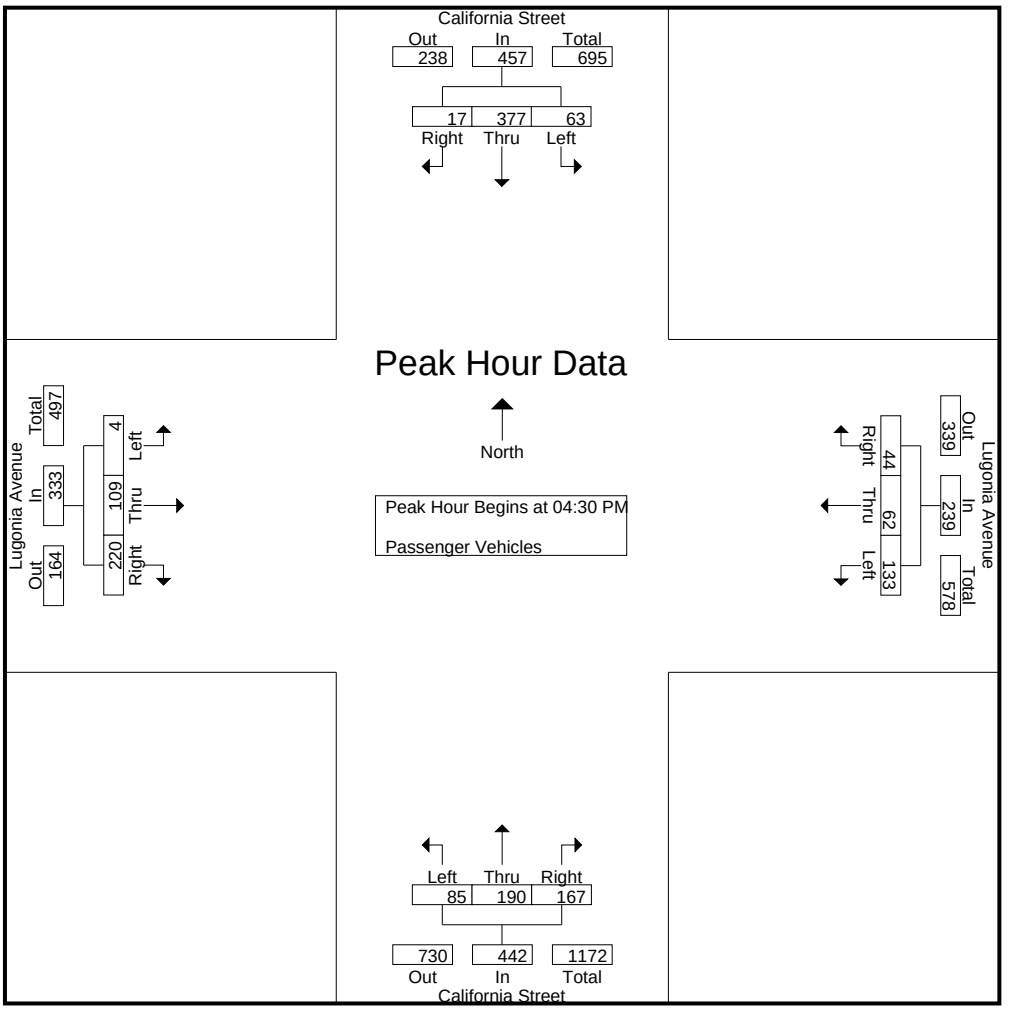
City of Redlands
N/S: California Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 01_RED_California_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	**20**	**113**	3	**136**	32	10	10	52	22	41	**50**	113	1	27	**70**	98
+15 mins.	19	98	**5**	122	29	**19**	10	58	**26**	53	44	**123**	1	23	41	65
+30 mins.	10	80	5	95	34	19	8	61	19	42	33	94	**2**	**33**	64	**99**
+45 mins.	14	86	4	104	**38**	14	**16**	**68**	18	**54**	40	112	0	26	45	71
Total Volume	63	377	17	457	133	62	44	239	85	190	167	442	4	109	220	333
% App. Total	13.8	82.5	3.7		55.6	25.9	18.4		19.2	43	37.8		1.2	32.7	66.1	
PHF	.788	.834	.850	.840	.875	.816	.688	.879	.817	.880	.835	.898	.500	.826	.786	.841

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City of Redlands
N/S: California Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 01_RED_California_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
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Groups Printed- Large 2 Axle Vehicles

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	2	0	2	0	1	0	1	0	0	0	0	4
04:15 PM	0	1	0	1	0	0	0	0	1	3	0	4	0	0	1	1	6
04:30 PM	0	1	0	1	0	0	0	0	1	1	0	2	1	0	1	2	5
04:45 PM	0	2	1	3	0	0	0	0	2	0	0	2	0	0	0	0	5
Total	0	5	1	6	0	2	0	2	4	5	0	9	1	0	2	3	20
05:00 PM	0	3	0	3	0	0	1	1	0	0	0	0	0	0	0	0	4
05:15 PM	0	1	0	1	0	0	0	0	2	2	1	5	0	0	0	0	6
05:30 PM	0	1	0	1	1	0	0	1	1	1	1	3	0	0	0	0	5
05:45 PM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	1	1	4
Total	0	6	0	6	1	0	1	2	3	5	2	10	0	0	1	1	19
Grand Total	0	11	1	12	1	2	1	4	7	10	2	19	1	0	3	4	39
Apprch %	0	91.7	8.3		25	50	25		36.8	52.6	10.5		25	0	75		
Total %	0	28.2	2.6	30.8	2.6	5.1	2.6	10.3	17.9	25.6	5.1	48.7	2.6	0	7.7	10.3	

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	1	0	1	0	0	0	0	1	1	0	2	**1**	0	**1**	**2**	5
04:45 PM	0	2	**1**	**3**	0	0	0	0	**2**	0	0	2	0	0	0	0	5
05:00 PM	0	**3**	0	3	0	0	**1**	**1**	0	0	0	0	0	0	0	0	4
05:15 PM	0	1	0	1	0	0	0	0	2	**2**	**1**	**5**	0	0	0	0	**6**
Total Volume	0	7	1	8	0	0	1	1	5	3	1	9	1	0	1	2	20
% App. Total	0	87.5	12.5		0	0	100		55.6	33.3	11.1		50	0	50		
PHF	.000	.583	.250	.667	.000	.000	.250	.250	.625	.375	.250	.450	.250	.000	.250	.250	.833

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City of Redlands
N/S: California Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 01_RED_California_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
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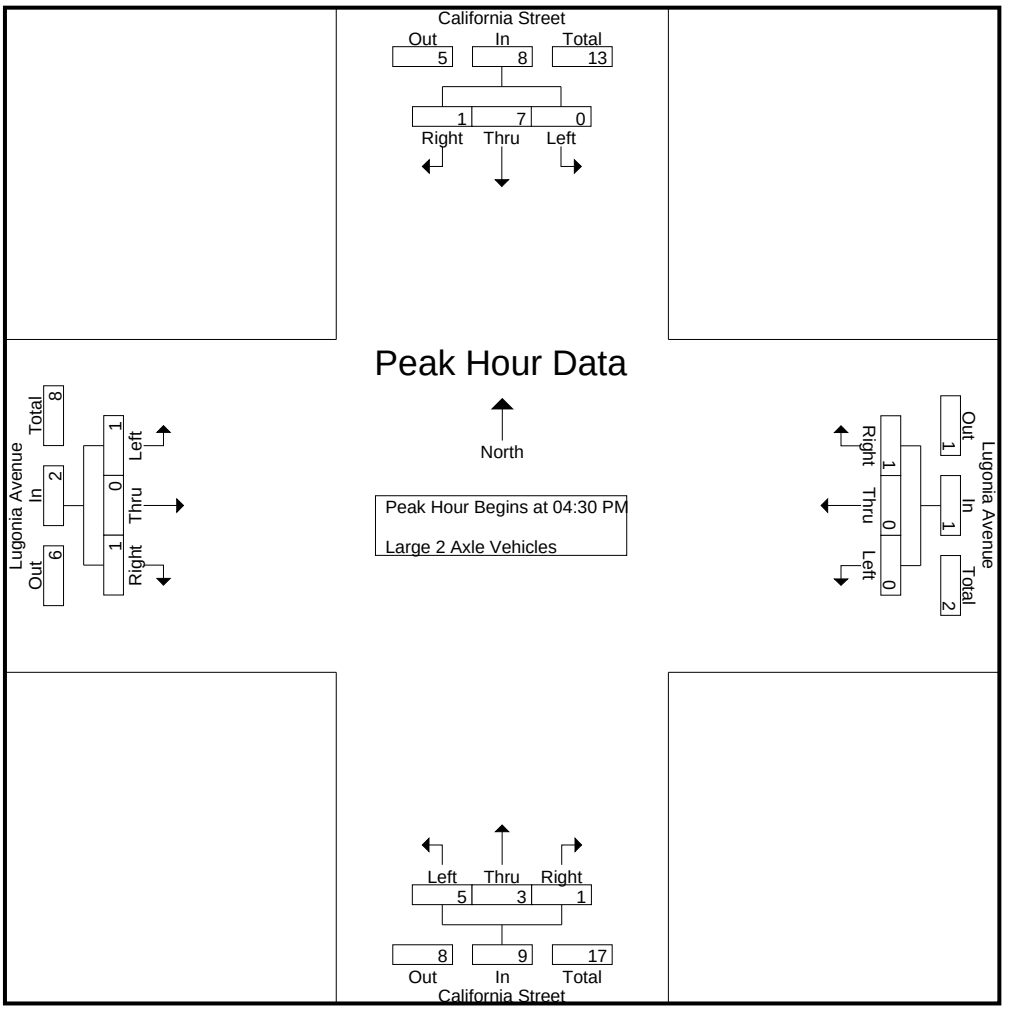

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	1	0	1	0	0	0	0	1	1	0	2	**1**	0	**1**	**2**
+15 mins.	0	2	**1**	**3**	0	0	0	0	**2**	0	0	2	0	0	0	0
+30 mins.	0	**3**	0	3	0	0	**1**	**1**	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	2	**2**	**1**	**5**	0	0	0	0
Total Volume	0	7	1	8	0	0	1	1	5	3	1	9	1	0	1	2
% App. Total	0	87.5	12.5		0	0	100		55.6	33.3	11.1		50	0	50	
PHF	.000	.583	.250	.667	.000	.000	.250	.250	.625	.375	.250	.450	.250	.000	.250	.250

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File Name : 01_RED_California_Lugonia PM
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Groups Printed- 3 Axle Vehicles

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	2	0	2	0	1	0	1	4
04:15 PM	0	2	0	2	0	0	0	0	1	1	0	2	0	0	1	1	5
04:30 PM	0	2	0	2	0	0	0	0	0	2	0	2	0	0	0	0	4
04:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1	3
Total	0	6	0	6	0	0	0	0	1	6	0	7	0	1	2	3	16
05:00 PM	0	2	0	2	0	0	0	0	1	0	0	1	0	0	0	0	3
05:15 PM	0	2	0	2	0	0	0	0	1	2	0	3	0	0	1	1	6
05:30 PM	0	5	0	5	1	0	0	1	0	1	0	1	0	0	0	0	7
05:45 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	12	0	12	1	0	0	1	2	3	0	5	0	0	1	1	19
Grand Total	0	18	0	18	1	0	0	1	3	9	0	12	0	1	3	4	35
Apprch %	0	100	0		100	0	0		25	75	0		0	25	75		
Total %	0	51.4	0	51.4	2.9	0	0	2.9	8.6	25.7	0	34.3	0	2.9	8.6	11.4	

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**2**	0	**2**	0	0	0	0	0	**2**	0	2	0	0	0	0	4
04:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	**1**	**1**	3
05:00 PM	0	2	0	2	0	0	0	0	**1**	0	0	1	0	0	0	0	3
05:15 PM	0	2	0	2	0	0	0	0	1	2	0	**3**	0	0	1	1	**6**
Total Volume	0	7	0	7	0	0	0	0	2	5	0	7	0	0	2	2	16
% App. Total	0	100	0		0	0	0		28.6	71.4	0		0	0	100		
PHF	.000	.875	.000	.875	.000	.000	.000	.000	.500	.625	.000	.583	.000	.000	.500	.500	.667

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City of Redlands
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Weather: Clear

File Name : 01_RED_California_Lugonia PM
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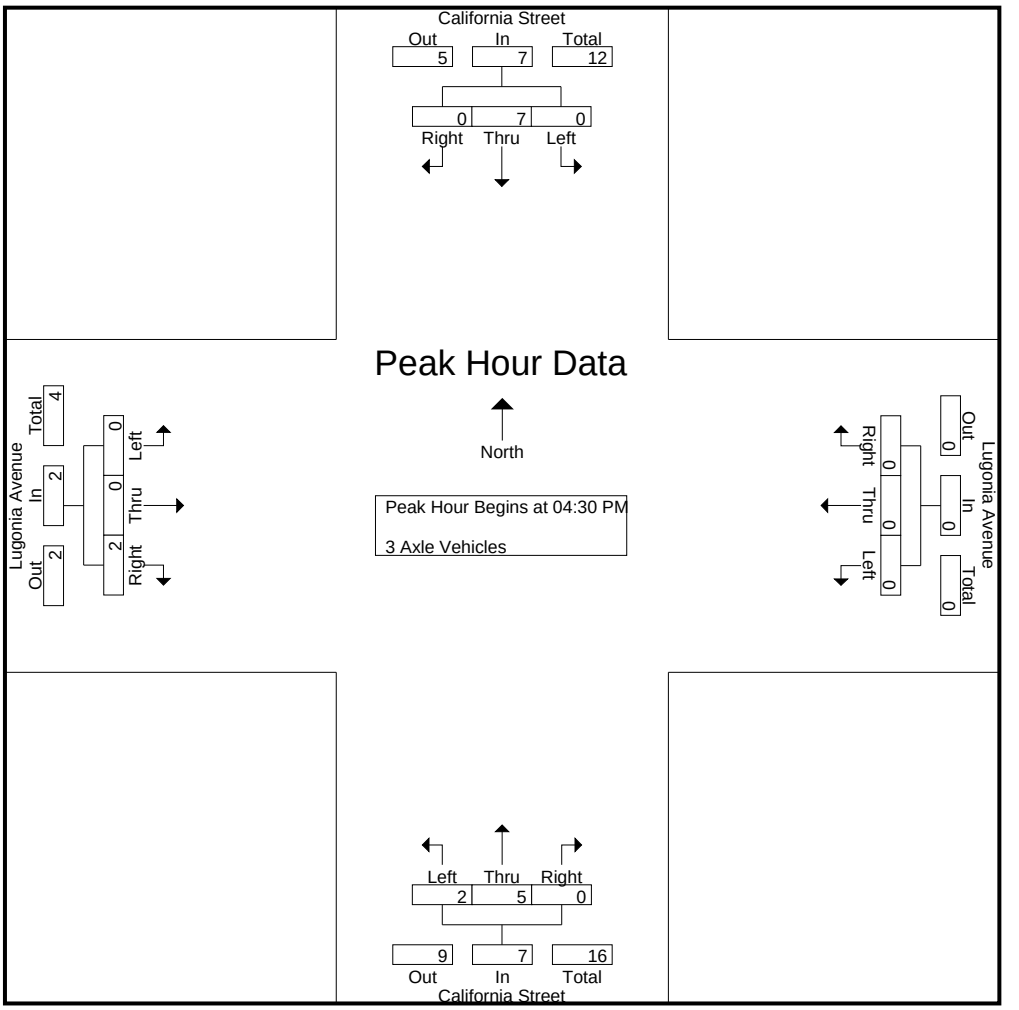

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	**2**	0	**2**	0	0	0	0	0	**2**	0	2	0	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	**1**	**1**
+30 mins.	0	2	0	2	0	0	0	0	**1**	0	0	1	0	0	0	0
+45 mins.	0	2	0	2	0	0	0	0	1	2	0	**3**	0	0	1	1
Total Volume	0	7	0	7	0	0	0	0	2	5	0	7	0	0	2	2
% App. Total	0	100	0		0	0	0		28.6	71.4	0		0	0	100	
PHF	.000	.875	.000	.875	.000	.000	.000	.000	.500	.625	.000	.583	.000	.000	.500	.500

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City of Redlands
N/S: California Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 01_RED_California_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	1	9	1	11	0	0	0	0	0	8	0	8	0	0	2	2	21
04:15 PM	0	13	0	13	0	0	0	0	4	12	0	16	0	0	0	0	29
04:30 PM	0	10	0	10	0	0	0	0	1	5	0	6	1	0	2	3	19
04:45 PM	0	15	0	15	0	0	0	0	0	6	0	6	0	0	2	2	23
Total	1	47	1	49	0	0	0	0	5	31	0	36	1	0	6	7	92
05:00 PM	0	9	0	9	1	0	0	1	0	3	0	3	0	0	1	1	14
05:15 PM	0	5	0	5	0	0	0	0	1	1	0	2	0	0	2	2	9
05:30 PM	0	7	0	7	1	0	0	1	1	6	1	8	0	0	1	1	17
05:45 PM	0	9	1	10	0	1	0	1	1	2	0	3	0	0	3	3	17
Total	0	30	1	31	2	1	0	3	3	12	1	16	0	0	7	7	57
Grand Total	1	77	2	80	2	1	0	3	8	43	1	52	1	0	13	14	149
Apprch %	1.2	96.2	2.5		66.7	33.3	0		15.4	82.7	1.9		7.1	0	92.9		
Total %	0.7	51.7	1.3	53.7	1.3	0.7	0	2	5.4	28.9	0.7	34.9	0.7	0	8.7	9.4	

	California Street Southbound				Lugonia Avenue Westbound				California Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	10	0	10	0	0	0	0	**1**	5	0	**6**	**1**	0	**2**	**3**	19
04:45 PM	0	**15**	0	**15**	0	0	0	0	0	**6**	0	6	0	0	2	2	**23**
05:00 PM	0	9	0	9	**1**	0	0	**1**	0	3	0	3	0	0	1	1	14
05:15 PM	0	5	0	5	0	0	0	0	1	1	0	2	0	0	2	2	9
Total Volume	0	39	0	39	1	0	0	1	2	15	0	17	1	0	7	8	65
% App. Total	0	100	0		100	0	0		11.8	88.2	0		12.5	0	87.5		
PHF	.000	.650	.000	.650	.250	.000	.000	.250	.500	.625	.000	.708	.250	.000	.875	.667	.707

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City of Redlands
N/S: California Street
E/W: Lugonia Avenue
Weather: Clear

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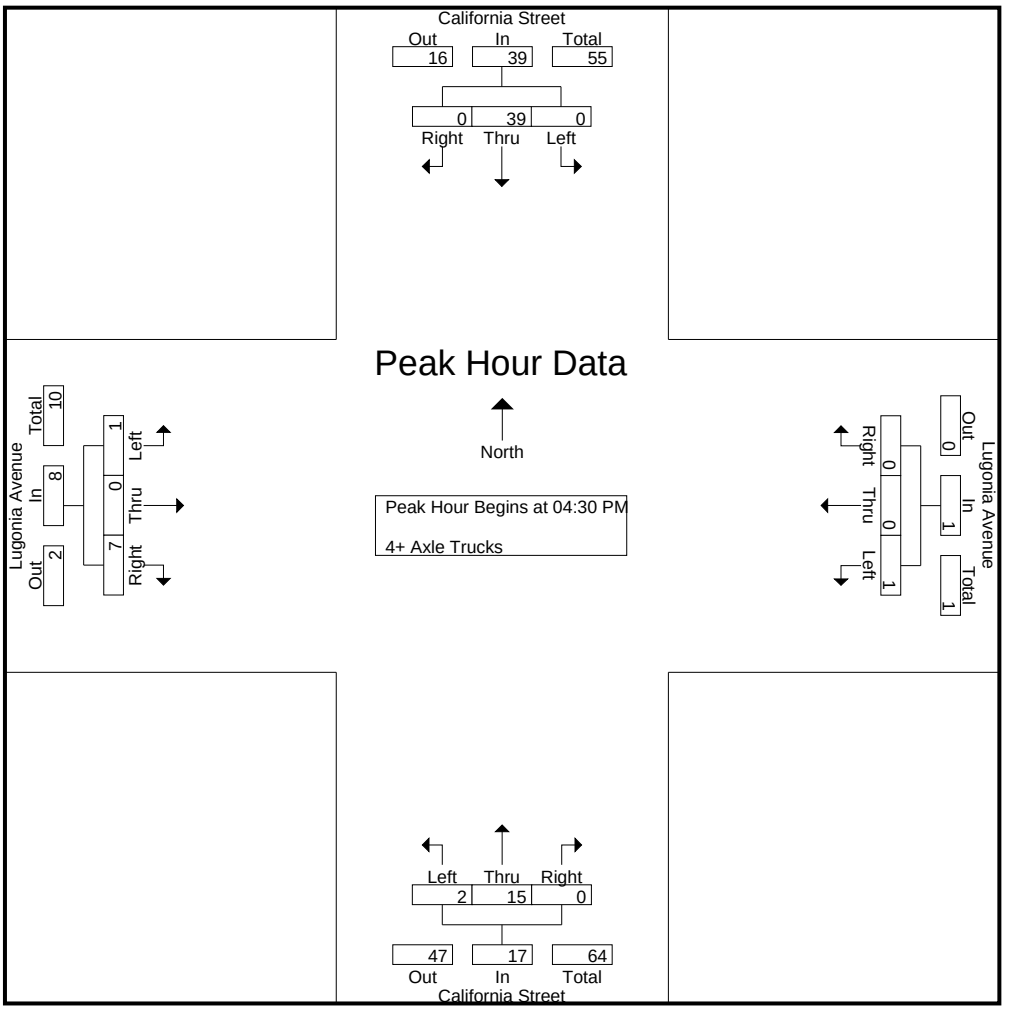

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	10	0	10	0	0	0	0	**1**	5	0	**6**	**1**	0	**2**	**3**
+15 mins.	0	**15**	0	**15**	0	0	0	0	0	**6**	0	6	0	0	2	2
+30 mins.	0	9	0	9	**1**	0	0	**1**	0	3	0	3	0	0	1	1
+45 mins.	0	5	0	5	0	0	0	0	1	1	0	2	0	0	2	2
Total Volume	0	39	0	39	1	0	0	1	2	15	0	17	1	0	7	8
% App. Total	0	100	0		100	0	0		11.8	88.2	0		12.5	0	87.5	
PHF	.000	.650	.000	.650	.250	.000	.000	.250	.500	.625	.000	.708	.250	.000	.875	.667

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
Site Code : 07518579
Start Date : 8/14/2018
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	7	21	6	34	21	44	4	69	5	20	12	37	4	13	3	20	160
07:15 AM	4	11	5	20	31	39	6	76	5	14	7	26	1	9	2	12	134
07:30 AM	4	34	4	42	34	47	5	86	10	28	15	53	1	7	4	12	193
07:45 AM	8	49	9	66	29	53	5	87	17	35	15	67	2	12	4	18	238
Total	23	115	24	162	115	183	20	318	37	97	49	183	8	41	13	62	725
08:00 AM	6	40	1	47	33	47	3	83	6	27	12	45	2	15	4	21	196
08:15 AM	3	43	6	52	31	31	3	65	23	22	13	58	2	12	3	17	192
08:30 AM	2	46	4	52	36	38	3	77	9	21	21	51	3	25	5	33	213
08:45 AM	3	32	4	39	34	28	1	63	9	18	14	41	3	13	8	24	167
Total	14	161	15	190	134	144	10	288	47	88	60	195	10	65	20	95	768
Grand Total	37	276	39	352	249	327	30	606	84	185	109	378	18	106	33	157	1493
Apprch %	10.5	78.4	11.1		41.1	54	5		22.2	48.9	28.8		11.5	67.5	21		
Total %	2.5	18.5	2.6	23.6	16.7	21.9	2	40.6	5.6	12.4	7.3	25.3	1.2	7.1	2.2	10.5	
Passenger Vehicles	37	269	33	339	245	322	30	597	83	179	106	368	18	103	31	152	1456
% Passenger Vehicles	100	97.5	84.6	96.3	98.4	98.5	100	98.5	98.8	96.8	97.2	97.4	100	97.2	93.9	96.8	97.5
Large 2 Axle Vehicles	0	3	1	4	1	4	0	5	0	0	3	3	0	2	0	2	14
% Large 2 Axle Vehicles	0	1.1	2.6	1.1	0.4	1.2	0	0.8	0	0	2.8	0.8	0	1.9	0	1.3	0.9
3 Axle Vehicles	0	3	0	3	2	0	0	2	1	3	0	4	0	0	2	2	11
% 3 Axle Vehicles	0	1.1	0	0.9	0.8	0	0	0.3	1.2	1.6	0	1.1	0	0	6.1	1.3	0.7
4+ Axle Trucks	0	1	5	6	1	1	0	2	0	3	0	3	0	1	0	1	12
% 4+ Axle Trucks	0	0.4	12.8	1.7	0.4	0.3	0	0.3	0	1.6	0	0.8	0	0.9	0	0.6	0.8

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**8**	**49**	**9**	**66**	29	**53**	**5**	**87**	17	**35**	15	**67**	2	12	4	18	**238**
08:00 AM	6	40	1	47	33	47	3	83	6	27	12	45	2	15	4	21	196
08:15 AM	3	43	6	52	31	31	3	65	**23**	22	13	58	2	12	3	17	192
08:30 AM	2	46	4	52	**36**	38	3	77	9	21	**21**	51	**3**	**25**	**5**	**33**	213
Total Volume	19	178	20	217	129	169	14	312	55	105	61	221	9	64	16	89	839
% App. Total	8.8	82	9.2		41.3	54.2	4.5		24.9	47.5	27.6		10.1	71.9	18		
PHF	.594	.908	.556	.822	.896	.797	.700	.897	.598	.750	.726	.825	.750	.640	.800	.674	.881

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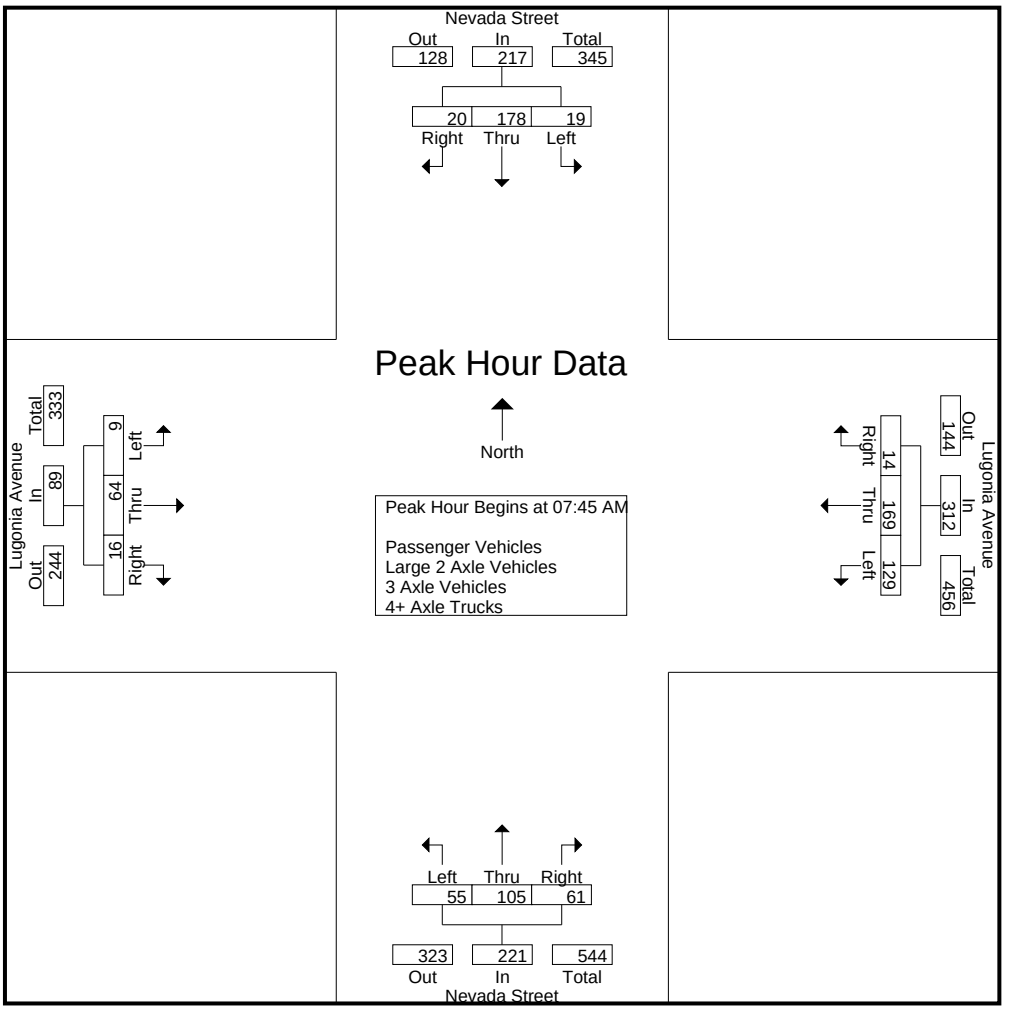
City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
Site Code : 07518579
Start Date : 8/14/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:15 AM				07:30 AM				08:00 AM			
+0 mins.	**8**	**49**	**9**	**66**	31	39	**6**	76	10	28	**15**	53	2	15	4	21
+15 mins.	6	40	1	47	**34**	47	5	86	17	**35**	15	**67**	2	12	3	17
+30 mins.	3	43	6	52	29	**53**	5	**87**	6	27	12	45	**3**	**25**	5	**33**
+45 mins.	2	46	4	52	33	47	3	83	**23**	22	13	58	3	13	**8**	24
Total Volume	19	178	20	217	127	186	19	332	56	112	55	223	10	65	20	95
% App. Total	8.8	82	9.2		38.3	56	5.7		25.1	50.2	24.7		10.5	68.4	21.1	
PHF	.594	.908	.556	.822	.934	.877	.792	.954	.609	.800	.917	.832	.833	.650	.625	.720

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
Site Code : 07518579
Start Date : 8/14/2018
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Groups Printed- Passenger Vehicles

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	7	21	4	32	21	44	4	69	5	19	11	35	4	12	3	19	155
07:15 AM	4	10	4	18	30	37	6	73	5	14	7	26	1	9	2	12	129
07:30 AM	4	34	3	41	34	46	5	85	10	27	15	52	1	7	4	12	190
07:45 AM	8	47	8	63	28	53	5	86	16	34	15	65	2	12	2	16	230
Total	23	112	19	154	113	180	20	313	36	94	48	178	8	40	11	59	704
08:00 AM	6	39	1	46	33	46	3	82	6	26	12	44	2	15	4	21	193
08:15 AM	3	42	5	50	31	31	3	65	23	22	13	58	2	12	3	17	190
08:30 AM	2	45	4	51	35	37	3	75	9	19	19	47	3	23	5	31	204
08:45 AM	3	31	4	38	33	28	1	62	9	18	14	41	3	13	8	24	165
Total	14	157	14	185	132	142	10	284	47	85	58	190	10	63	20	93	752
Grand Total	37	269	33	339	245	322	30	597	83	179	106	368	18	103	31	152	1456
Apprch %	10.9	79.4	9.7		41	53.9	5		22.6	48.6	28.8		11.8	67.8	20.4		
Total %	2.5	18.5	2.3	23.3	16.8	22.1	2.1	41	5.7	12.3	7.3	25.3	1.2	7.1	2.1	10.4	

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**8**	**47**	**8**	**63**	28	**53**	**5**	**86**	16	**34**	15	**65**	2	12	2	16	**230**
08:00 AM	6	39	1	46	33	46	3	82	6	26	12	44	2	15	4	21	193
08:15 AM	3	42	5	50	31	31	3	65	**23**	22	13	58	2	12	3	17	190
08:30 AM	2	45	4	51	**35**	37	3	75	9	19	**19**	47	**3**	**23**	**5**	**31**	204
Total Volume	19	173	18	210	127	167	14	308	54	101	59	214	9	62	14	85	817
% App. Total	9	82.4	8.6		41.2	54.2	4.5		25.2	47.2	27.6		10.6	72.9	16.5		
PHF	.594	.920	.563	.833	.907	.788	.700	.895	.587	.743	.776	.823	.750	.674	.700	.685	.888

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
Site Code : 07518579
Start Date : 8/14/2018
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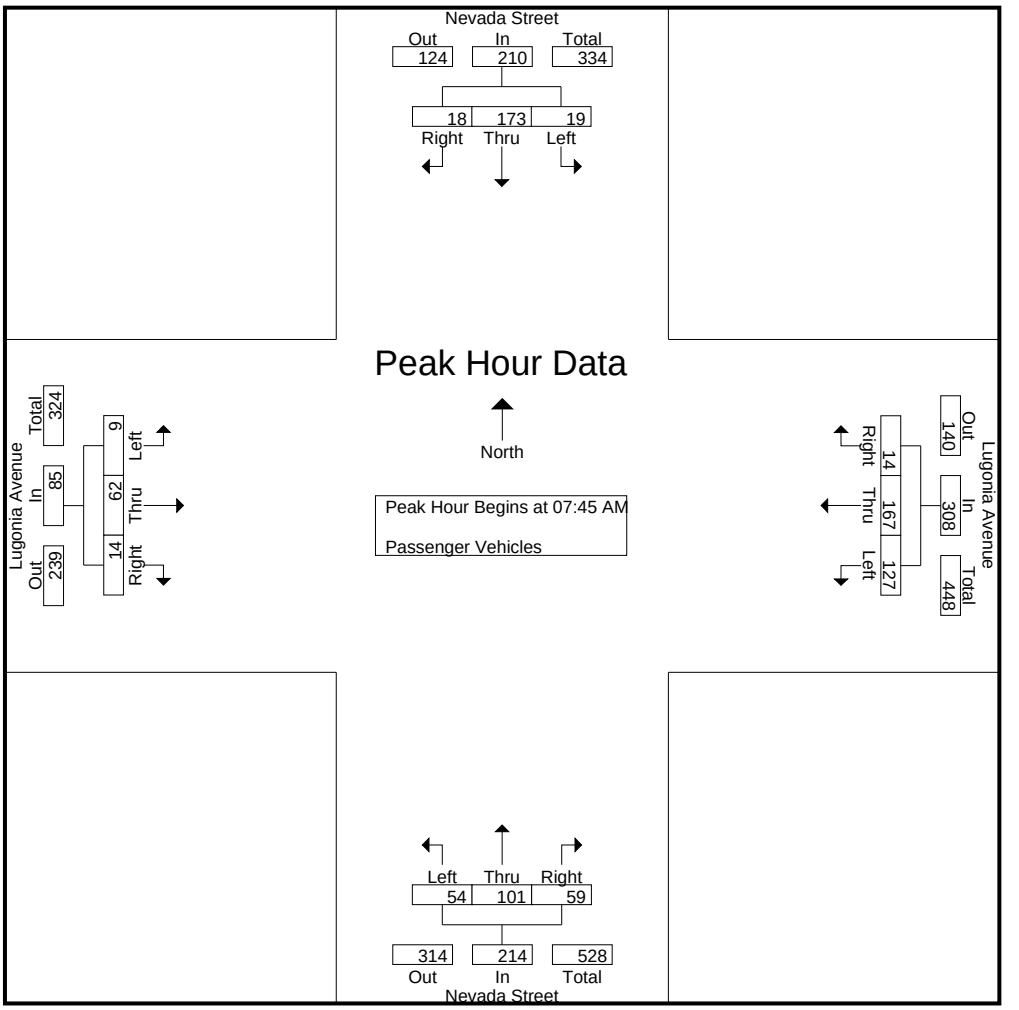

Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	**8**	**47**	**8**	**63**	28	**53**	**5**	**86**	16	**34**	15	**65**	2	12	2	16
+15 mins.	6	39	1	46	33	46	3	82	6	26	12	44	2	15	4	21
+30 mins.	3	42	5	50	31	31	3	65	**23**	22	13	58	2	12	3	17
+45 mins.	2	45	4	51	**35**	37	3	75	9	19	**19**	47	**3**	**23**	**5**	**31**
Total Volume	19	173	18	210	127	167	14	308	54	101	59	214	9	62	14	85
% App. Total	9	82.4	8.6		41.2	54.2	4.5		25.2	47.2	27.6		10.6	72.9	16.5	
PHF	.594	.920	.563	.833	.907	.788	.700	.895	.587	.743	.776	.823	.750	.674	.700	.685

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
Site Code : 07518579
Start Date : 8/14/2018
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Groups Printed- Large 2 Axle Vehicles

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	0	0	0	0	0	1	1	0	1	0	1	3
07:15 AM	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	1	2	1	2	0	3	0	0	1	1	0	1	0	1	7
08:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
08:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	1	0	1	0	0	2	2	0	1	0	1	4
08:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	2	0	2	0	2	0	0	2	2	0	1	0	1	7
Grand Total	0	3	1	4	1	4	0	5	0	0	3	3	0	2	0	2	14
Apprch %	0	75	25		20	80	0		0	0	100		0	100	0		
Total %	0	21.4	7.1	28.6	7.1	28.6	0	35.7	0	0	21.4	21.4	0	14.3	0	14.3	

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	1
08:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	1	0	1	0	0	**2**	**2**	0	**1**	0	**1**	**4**
Total Volume	0	2	0	2	0	2	0	2	0	0	2	2	0	1	0	1	7
% App. Total	0	100	0		0	100	0		0	0	100		0	100	0		
PHF	.000	.500	.000	.500	.000	.500	.000	.500	.000	.000	.250	.250	.000	.250	.000	.250	.438

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City of Redlands
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Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
Site Code : 07518579
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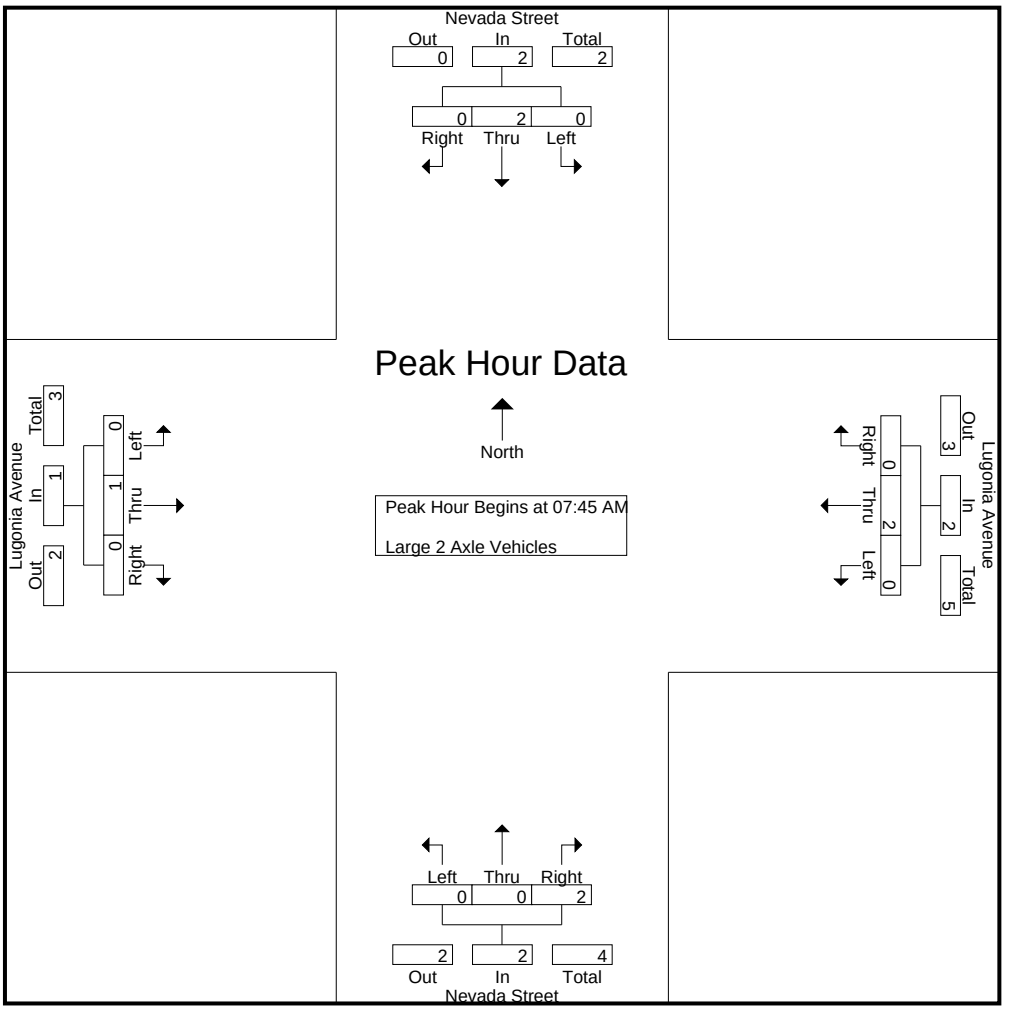

Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+30 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	1	0	1	0	0	**2**	**2**	0	**1**	0	**1**
Total Volume	0	2	0	2	0	2	0	2	0	0	2	2	0	1	0	1
% App. Total	0	100	0		0	100	0		0	0	100		0	100	0	
PHF	.000	.500	.000	.500	.000	.500	.000	.500	.000	.000	.250	.250	.000	.250	.000	.250

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City of Redlands
N/S: Nevada Street
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Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
Site Code : 07518579
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Groups Printed- 3 Axle Vehicles

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	1	0	0	1	1	1	0	2	0	0	2	2	5
Total	0	1	0	1	1	0	0	1	1	2	0	3	0	0	2	2	7
08:00 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
08:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	0	2	0	2	1	0	0	1	0	1	0	1	0	0	0	0	4
Grand Total	0	3	0	3	2	0	0	2	1	3	0	4	0	0	2	2	11
Apprch %	0	100	0		100	0	0		25	75	0		0	0	100		
Total %	0	27.3	0	27.3	18.2	0	0	18.2	9.1	27.3	0	36.4	0	0	18.2	18.2	

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	**1**	0	0	**1**	**1**	**1**	0	**2**	0	0	**2**	**2**	**5**
08:00 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total Volume	0	2	0	2	1	0	0	1	1	2	0	3	0	0	2	2	8
% App. Total	0	100	0		100	0	0		33.3	66.7	0		0	0	100		
PHF	.000	.500	.000	.500	.250	.000	.000	.250	.250	.500	.000	.375	.000	.000	.250	.250	.400

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City of Redlands
N/S: Nevada Street
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Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
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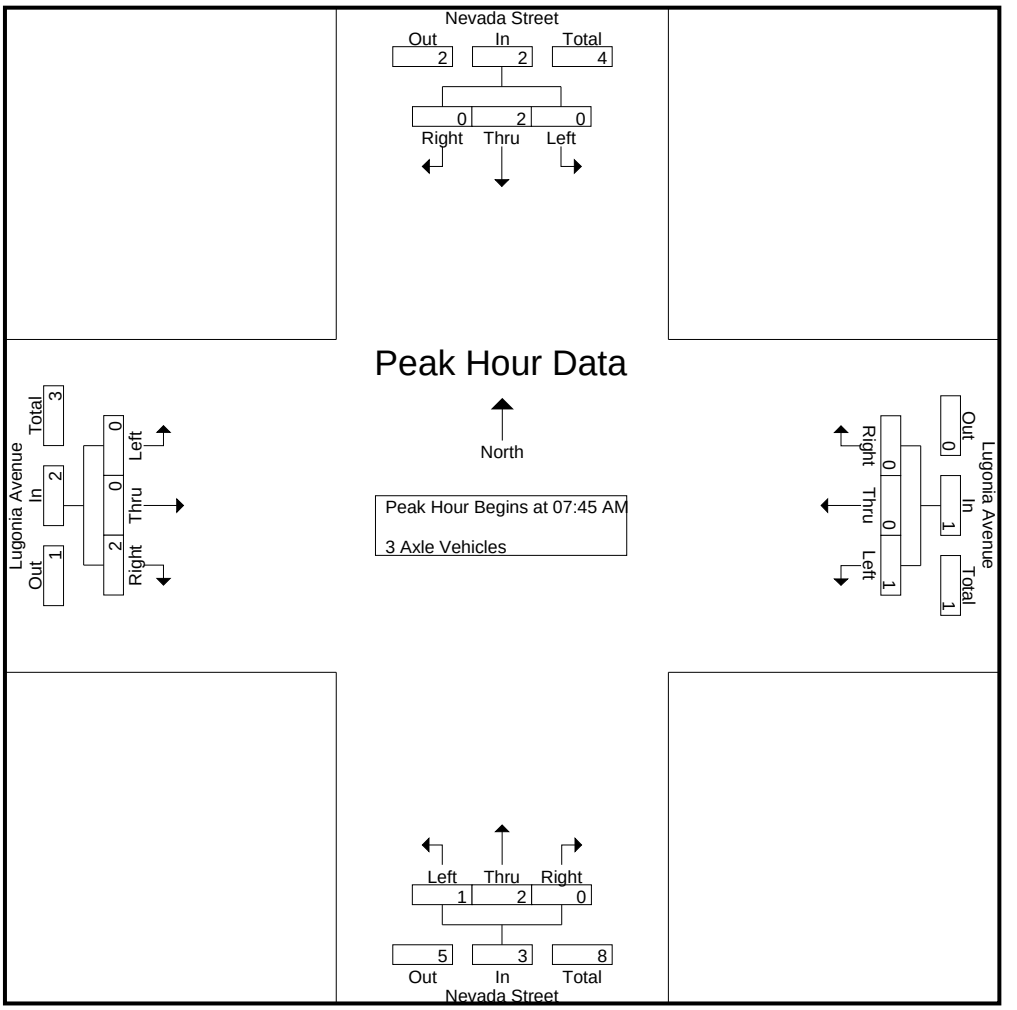

Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	0	0	0	0	**1**	0	0	**1**	**1**	**1**	0	**2**	0	0	**2**	**2**
+15 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
Total Volume	0	2	0	2	1	0	0	1	1	2	0	3	0	0	2	2
% App. Total	0	100	0		100	0	0		33.3	66.7	0		0	0	100	
PHF	.000	.500	.000	.500	.250	.000	.000	.250	.250	.500	.000	.375	.000	.000	.250	.250

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City of Redlands
N/S: Nevada Street
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Weather: Clear

File Name : 02_RED_Nevada_Lugonia AM
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Groups Printed- 4+ Axle Trucks

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	0	2
07:45 AM	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	4	5	0	1	0	1	0	1	0	1	0	0	0	0	7
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	1	0	1	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	1	0	0	1	0	2	0	2	0	1	0	1	5
Grand Total	0	1	5	6	1	1	0	2	0	3	0	3	0	1	0	1	12
Apprch %	0	16.7	83.3		50	50	0		0	100	0		0	100	0		
Total %	0	8.3	41.7	50	8.3	8.3	0	16.7	0	25	0	25	0	8.3	0	8.3	

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	**1**	**1**	**2**	0	0	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
08:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	**1**	0	0	**1**	0	1	0	1	0	**1**	0	**1**	**3**
Total Volume	0	1	2	3	1	0	0	1	0	2	0	2	0	1	0	1	7
% App. Total	0	33.3	66.7		100	0	0		0	100	0		0	100	0		
PHF	.000	.250	.500	.375	.250	.000	.000	.250	.000	.500	.000	.500	.000	.250	.000	.250	.583

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City of Redlands
N/S: Nevada Street
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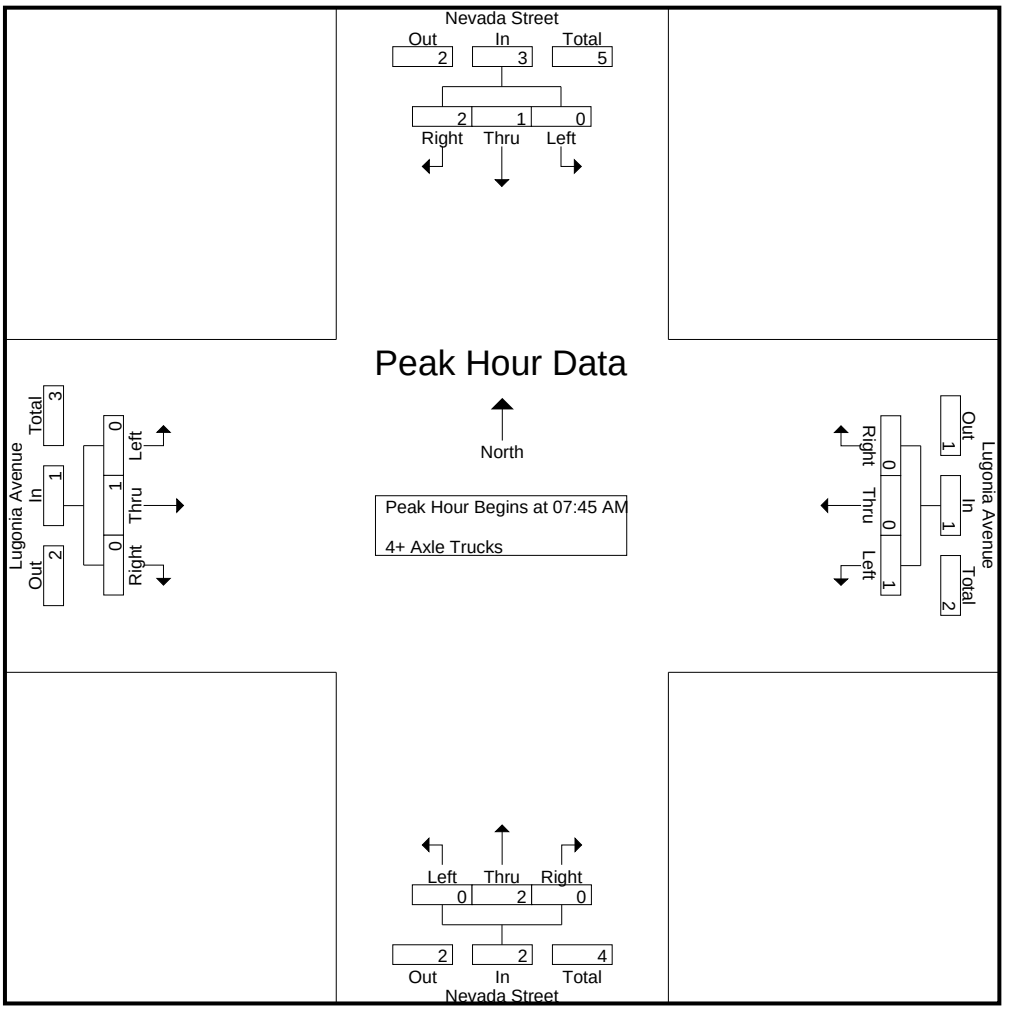

Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	0	**1**	**1**	**2**	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+30 mins.	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	**1**	0	0	**1**	0	1	0	1	0	**1**	0	**1**
Total Volume	0	1	2	3	1	0	0	1	0	2	0	2	0	1	0	1
% App. Total	0	33.3	66.7		100	0	0		0	100	0		0	100	0	
PHF	.000	.250	.500	.375	.250	.000	.000	.250	.000	.500	.000	.500	.000	.250	.000	.250

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City of Redlands
N/S: Nevada Street
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Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	15	37	5	57	32	37	7	76	6	42	41	89	8	56	21	85	307
04:15 PM	11	45	3	59	30	37	10	77	3	47	39	89	6	47	10	63	288
04:30 PM	13	48	2	63	39	38	5	82	7	65	46	118	4	82	19	105	368
04:45 PM	8	47	3	58	25	29	2	56	14	46	40	100	4	79	17	100	314
Total	47	177	13	237	126	141	24	291	30	200	166	396	22	264	67	353	1277
05:00 PM	14	49	2	65	37	46	8	91	14	76	44	134	8	77	20	105	395
05:15 PM	25	50	0	75	35	39	3	77	2	73	54	129	7	84	13	104	385
05:30 PM	11	49	5	65	38	24	6	68	5	47	37	89	6	75	9	90	312
05:45 PM	5	59	0	64	38	42	3	83	6	52	40	98	2	57	11	70	315
Total	55	207	7	269	148	151	20	319	27	248	175	450	23	293	53	369	1407
Grand Total	102	384	20	506	274	292	44	610	57	448	341	846	45	557	120	722	2684
Apprch %	20.2	75.9	4		44.9	47.9	7.2		6.7	53	40.3		6.2	77.1	16.6		
Total %	3.8	14.3	0.7	18.9	10.2	10.9	1.6	22.7	2.1	16.7	12.7	31.5	1.7	20.8	4.5	26.9	
Passenger Vehicles	101	367	17	485	273	289	44	606	55	441	340	836	42	556	119	717	2644
% Passenger Vehicles	99	95.6	85	95.8	99.6	99	100	99.3	96.5	98.4	99.7	98.8	93.3	99.8	99.2	99.3	98.5
Large 2 Axle Vehicles	1	9	2	12	1	2	0	3	0	1	1	2	2	0	0	2	19
% Large 2 Axle Vehicles	1	2.3	10	2.4	0.4	0.7	0	0.5	0	0.2	0.3	0.2	4.4	0	0	0.3	0.7
3 Axle Vehicles	0	0	1	1	0	0	0	0	0	3	0	3	0	0	1	1	5
% 3 Axle Vehicles	0	0	5	0.2	0	0	0	0	0	0.7	0	0.4	0	0	0.8	0.1	0.2
4+ Axle Trucks	0	8	0	8	0	1	0	1	2	3	0	5	1	1	0	2	16
% 4+ Axle Trucks	0	2.1	0	1.6	0	0.3	0	0.2	3.5	0.7	0	0.6	2.2	0.2	0	0.3	0.6

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	13	48	2	63	**39**	38	5	82	7	65	46	118	4	82	19	**105**	368
04:45 PM	8	47	**3**	58	25	29	2	56	**14**	46	40	100	4	79	17	100	314
05:00 PM	14	49	2	65	37	**46**	**8**	**91**	14	**76**	44	**134**	**8**	77	**20**	105	**395**
05:15 PM	**25**	**50**	0	**75**	35	39	3	77	2	73	**54**	129	7	**84**	13	104	385
Total Volume	60	194	7	261	136	152	18	306	37	260	184	481	23	322	69	414	1462
% App. Total	23	74.3	2.7		44.4	49.7	5.9		7.7	54.1	38.3		5.6	77.8	16.7		
PHF	.600	.970	.583	.870	.872	.826	.563	.841	.661	.855	.852	.897	.719	.958	.863	.986	.925

Counts Unlimited
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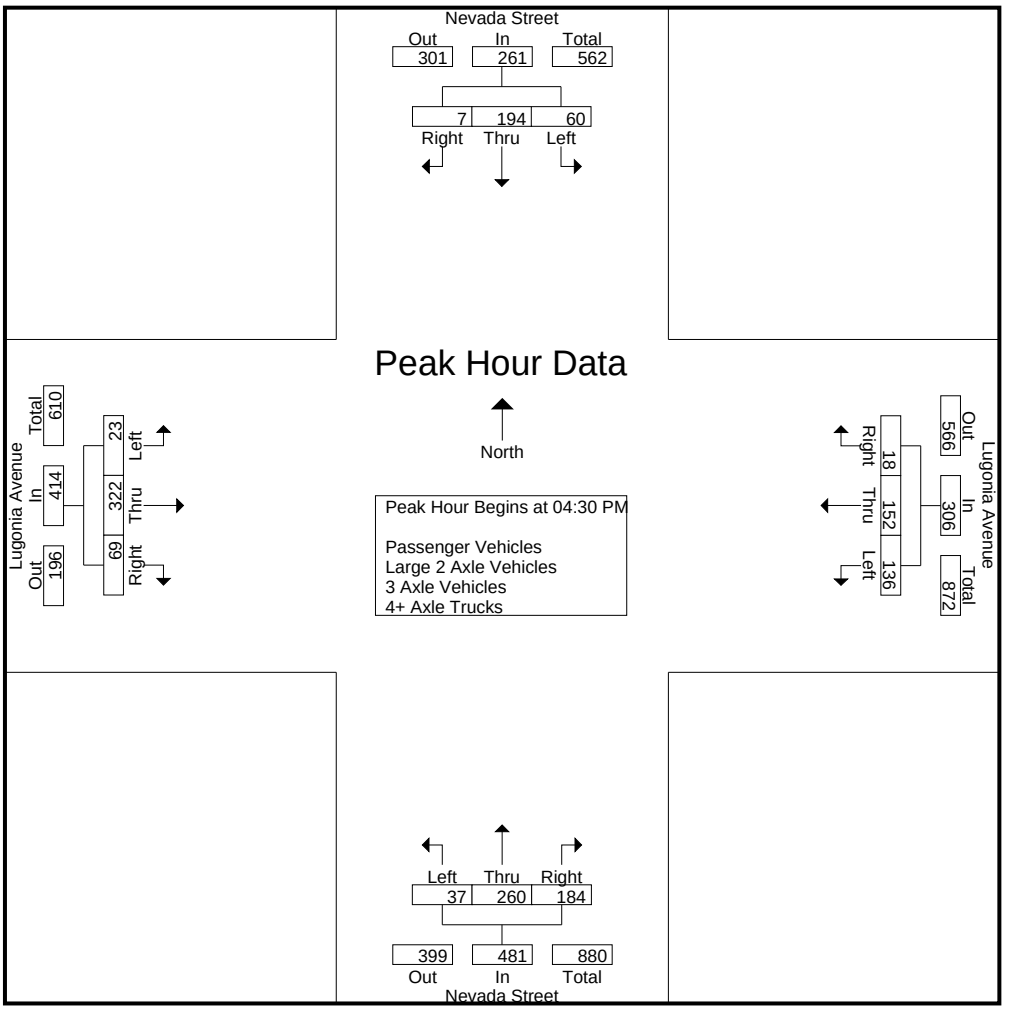
City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:30 PM				04:30 PM			
+0 mins.	14	49	2	65	37	**46**	**8**	**91**	7	65	46	118	4	82	19	**105**
+15 mins.	**25**	50	0	**75**	35	39	3	77	**14**	46	40	100	4	79	17	100
+30 mins.	11	49	**5**	65	**38**	24	6	68	14	**76**	44	**134**	**8**	77	**20**	105
+45 mins.	5	**59**	0	64	38	42	3	83	2	73	**54**	129	7	**84**	13	104
Total Volume	55	207	7	269	148	151	20	319	37	260	184	481	23	322	69	414
% App. Total	20.4	77	2.6		46.4	47.3	6.3		7.7	54.1	38.3		5.6	77.8	16.7	
PHF	.550	.877	.350	.897	.974	.821	.625	.876	.661	.855	.852	.897	.719	.958	.863	.986

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
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Groups Printed- Passenger Vehicles

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	15	36	4	55	32	37	7	76	6	41	41	88	7	56	20	83	302
04:15 PM	11	41	3	55	30	37	10	77	3	47	39	89	6	47	10	63	284
04:30 PM	12	45	2	59	38	38	5	81	7	62	46	115	4	82	19	105	360
04:45 PM	8	45	3	56	25	29	2	56	14	45	39	98	4	79	17	100	310
Total	46	167	12	225	125	141	24	290	30	195	165	390	21	264	66	351	1256
05:00 PM	14	48	2	64	37	44	8	89	13	76	44	133	8	77	20	105	391
05:15 PM	25	48	0	73	35	39	3	77	2	73	54	129	5	84	13	102	381
05:30 PM	11	47	3	61	38	24	6	68	4	46	37	87	6	74	9	89	305
05:45 PM	5	57	0	62	38	41	3	82	6	51	40	97	2	57	11	70	311
Total	55	200	5	260	148	148	20	316	25	246	175	446	21	292	53	366	1388
Grand Total	101	367	17	485	273	289	44	606	55	441	340	836	42	556	119	717	2644
Apprch %	20.8	75.7	3.5		45	47.7	7.3		6.6	52.8	40.7		5.9	77.5	16.6		
Total %	3.8	13.9	0.6	18.3	10.3	10.9	1.7	22.9	2.1	16.7	12.9	31.6	1.6	21	4.5	27.1	

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	12	45	2	59	**38**	38	5	81	7	62	46	115	4	82	19	**105**	360
04:45 PM	8	45	**3**	56	25	29	2	56	**14**	45	39	98	4	79	17	100	310
05:00 PM	14	**48**	2	64	37	**44**	**8**	**89**	13	**76**	44	**133**	**8**	77	**20**	105	**391**
05:15 PM	**25**	48	0	**73**	35	39	3	77	2	73	**54**	129	5	**84**	13	102	381
Total Volume	59	186	7	252	135	150	18	303	36	256	183	475	21	322	69	412	1442
% App. Total	23.4	73.8	2.8		44.6	49.5	5.9		7.6	53.9	38.5		5.1	78.2	16.7		
PHF	.590	.969	.583	.863	.888	.852	.563	.851	.643	.842	.847	.893	.656	.958	.863	.981	.922

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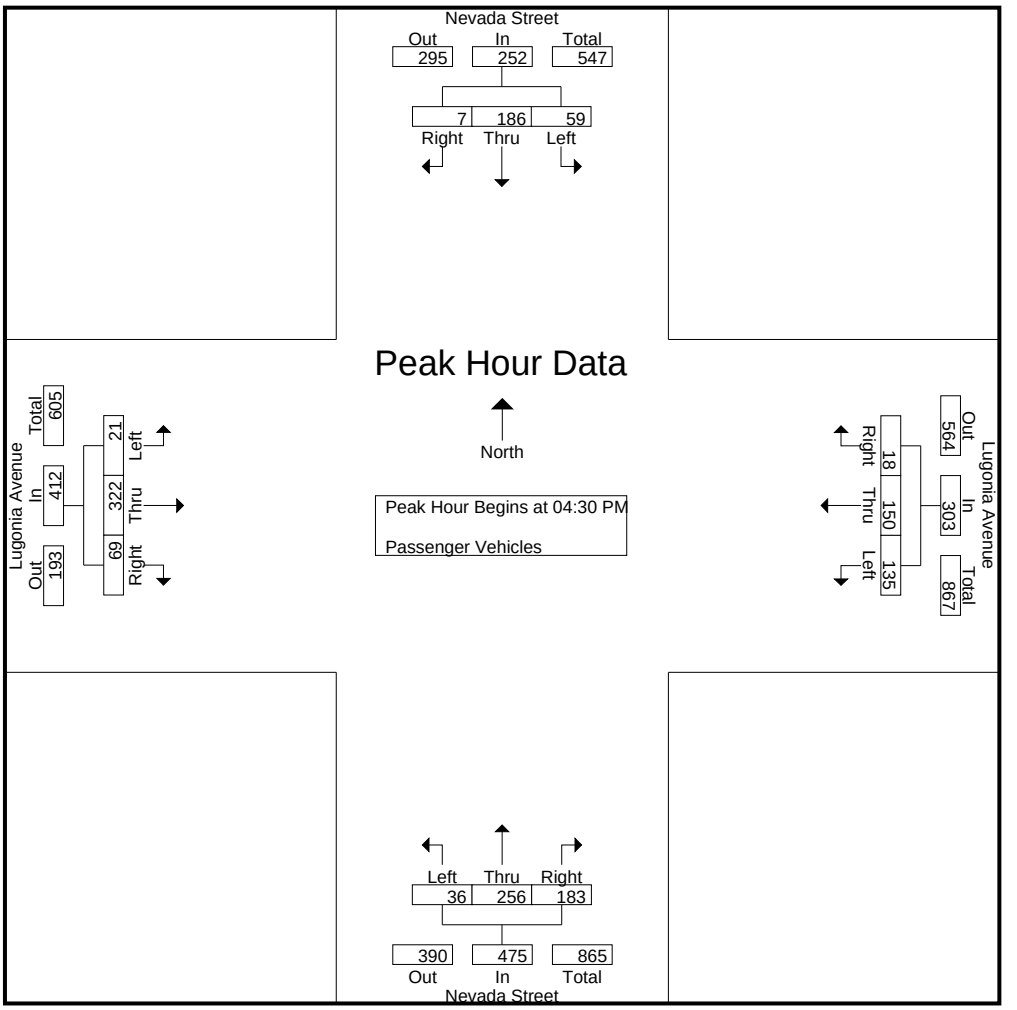
City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	12	45	2	59	**38**	38	5	81	7	62	46	115	4	82	19	**105**
+15 mins.	8	45	**3**	56	25	29	2	56	**14**	45	39	98	4	79	17	100
+30 mins.	14	**48**	2	64	37	**44**	**8**	**89**	13	**76**	44	**133**	**8**	77	**20**	105
+45 mins.	**25**	48	0	**73**	35	39	3	77	2	73	**54**	129	5	**84**	13	102
Total Volume	59	186	7	252	135	150	18	303	36	256	183	475	21	322	69	412
% App. Total	23.4	73.8	2.8		44.6	49.5	5.9		7.6	53.9	38.5		5.1	78.2	16.7	
PHF	.590	.969	.583	.863	.888	.852	.563	.851	.643	.842	.847	.893	.656	.958	.863	.981

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
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Groups Printed- Large 2 Axle Vehicles

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
04:30 PM	1	1	0	2	1	0	0	1	0	0	0	0	0	0	0	0	3
04:45 PM	0	2	0	2	0	0	0	0	0	0	1	1	0	0	0	0	3
Total	1	6	1	8	1	0	0	1	0	0	1	1	0	0	0	0	10
05:00 PM	0	1	0	1	0	2	0	2	0	0	0	0	0	0	0	0	3
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	2	0	0	2	3
05:30 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Total	0	3	1	4	0	2	0	2	0	1	0	1	2	0	0	2	9
Grand Total	1	9	2	12	1	2	0	3	0	1	1	2	2	0	0	2	19
Apprch %	8.3	75	16.7		33.3	66.7	0		0	50	50		100	0	0		
Total %	5.3	47.4	10.5	63.2	5.3	10.5	0	15.8	0	5.3	5.3	10.5	10.5	0	0	10.5	

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**1**	1	0	**2**	**1**	0	0	1	0	0	0	0	0	0	0	0	**3**
04:45 PM	0	**2**	0	2	0	0	0	0	0	0	**1**	**1**	0	0	0	0	3
05:00 PM	0	1	0	1	0	**2**	0	**2**	0	0	0	0	0	0	0	0	3
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	**2**	0	0	**2**	3
Total Volume	1	5	0	6	1	2	0	3	0	0	1	1	2	0	0	2	12
% App. Total	16.7	83.3	0		33.3	66.7	0		0	0	100		100	0	0		
PHF	.250	.625	.000	.750	.250	.250	.000	.375	.000	.000	.250	.250	.250	.000	.000	.250	1.00

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
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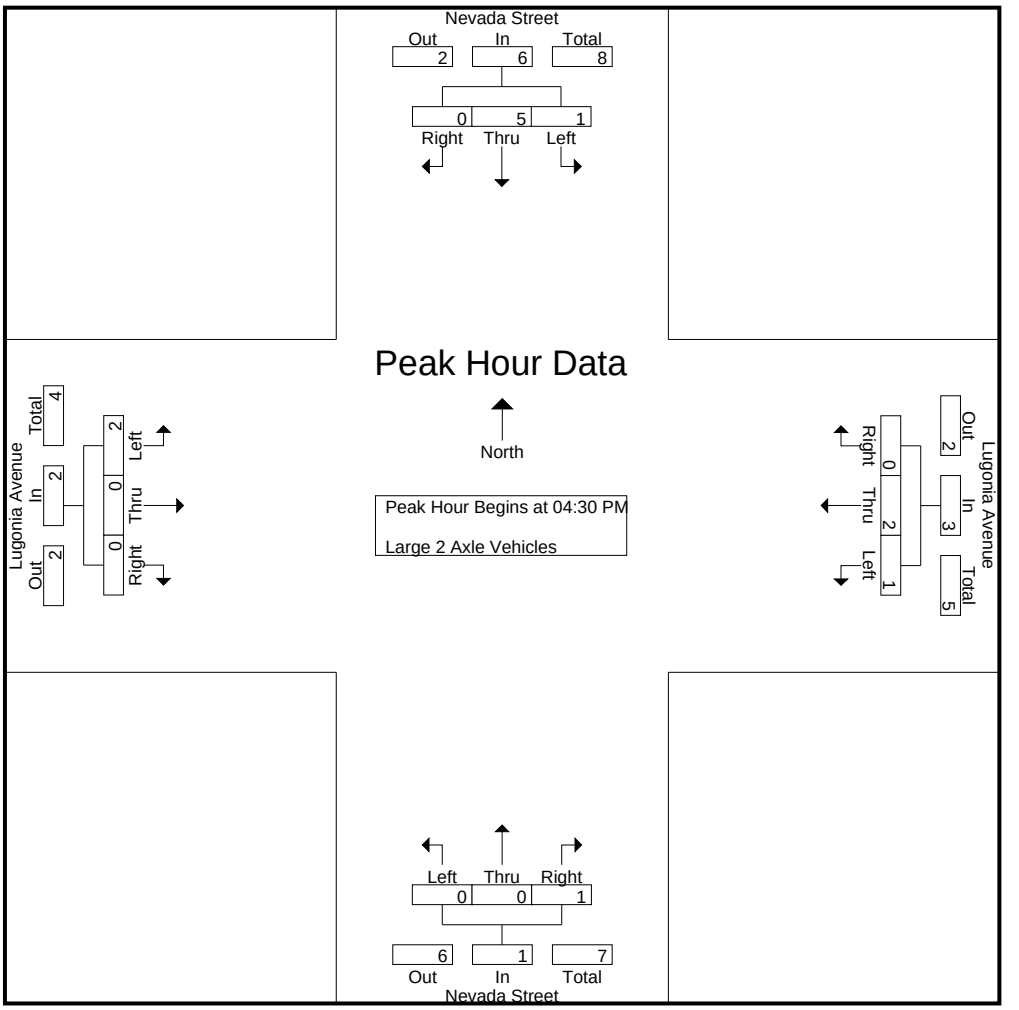

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	**1**	1	0	**2**	**1**	0	0	1	0	0	0	0	0	0	0	0
+15 mins.	0	**2**	0	2	0	0	0	0	0	0	**1**	**1**	0	0	0	0
+30 mins.	0	1	0	1	0	**2**	0	**2**	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	0	0	0	**2**	0	0	**2**
Total Volume	1	5	0	6	1	2	0	3	0	0	1	1	2	0	0	2
% App. Total	16.7	83.3	0		33.3	66.7	0		0	0	100		100	0	0	
PHF	.250	.625	.000	.750	.250	.250	.000	.375	.000	.000	.250	.250	.250	.000	.000	.250

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
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Groups Printed- 3 Axle Vehicles

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	2	0	2	0	0	1	1	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	0	0	0	0	1	0	1	0	0	0	0	2
Grand Total	0	0	1	1	0	0	0	0	0	3	0	3	0	0	1	1	5
Apprch %	0	0	100		0	0	0		0	100	0		0	0	100		
Total %	0	0	20	20	0	0	0	0	0	60	0	60	0	0	20	20	

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
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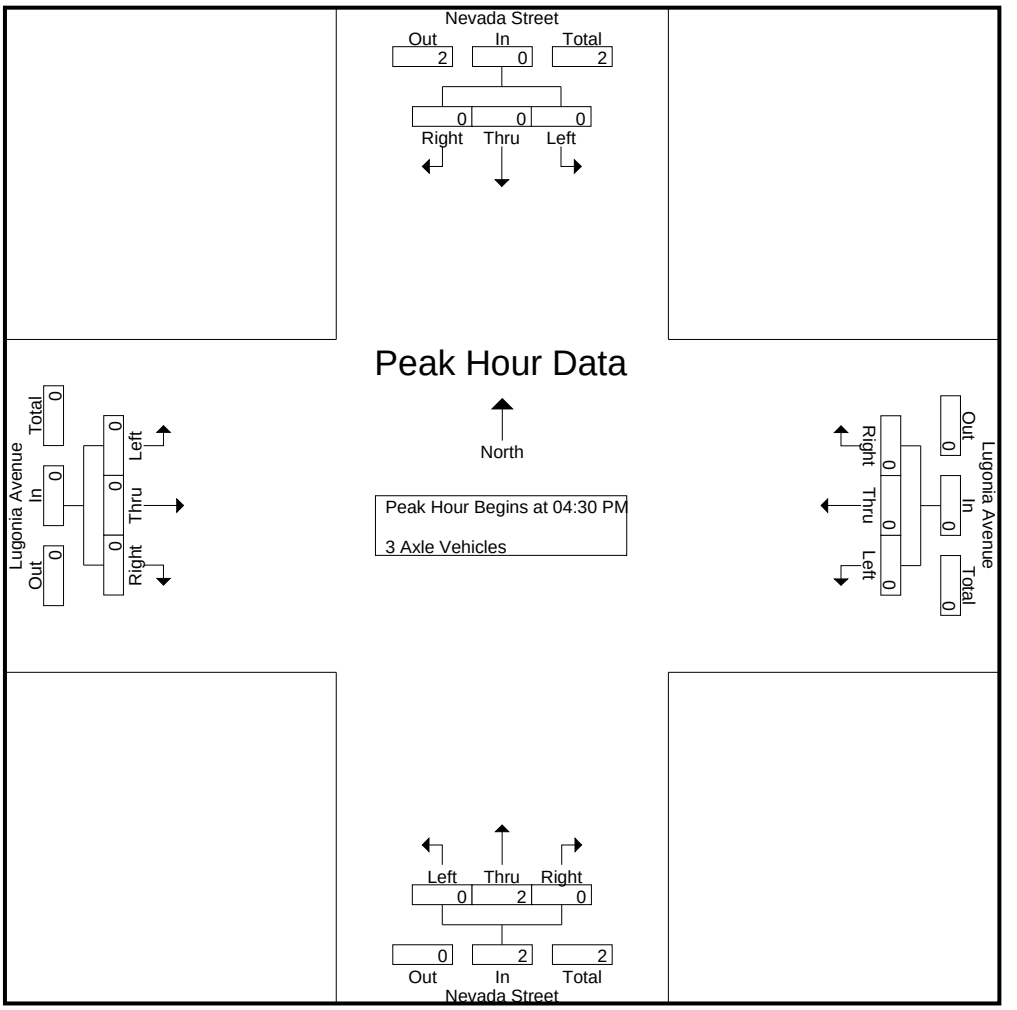

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
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Groups Printed- 4+ Axle Trucks

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	0	1	0	0	0	0	0	1	0	1	1	0	0	1	3
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	4	0	4	0	0	0	0	0	3	0	3	1	0	0	1	8
05:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	2	0	2	0	0	0	0	1	0	0	1	0	1	0	1	4
05:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
Total	0	4	0	4	0	1	0	1	2	0	0	2	0	1	0	1	8
Grand Total	0	8	0	8	0	1	0	1	2	3	0	5	1	1	0	2	16
Apprch %	0	100	0		0	100	0		40	60	0		50	50	0		
Total %	0	50	0	50	0	6.2	0	6.2	12.5	18.8	0	31.2	6.2	6.2	0	12.5	

	Nevada Street Southbound				Lugonia Avenue Westbound				Nevada Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**2**	0	**2**	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**3**
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	**1**	0	0	1	0	0	0	0	1
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	3	0	3	0	0	0	0	1	2	0	3	0	0	0	0	6
% App. Total	0	100	0		0	0	0		33.3	66.7	0		0	0	0		
PHF	.000	.375	.000	.375	.000	.000	.000	.000	.250	.500	.000	.750	.000	.000	.000	.000	.500

Counts Unlimited
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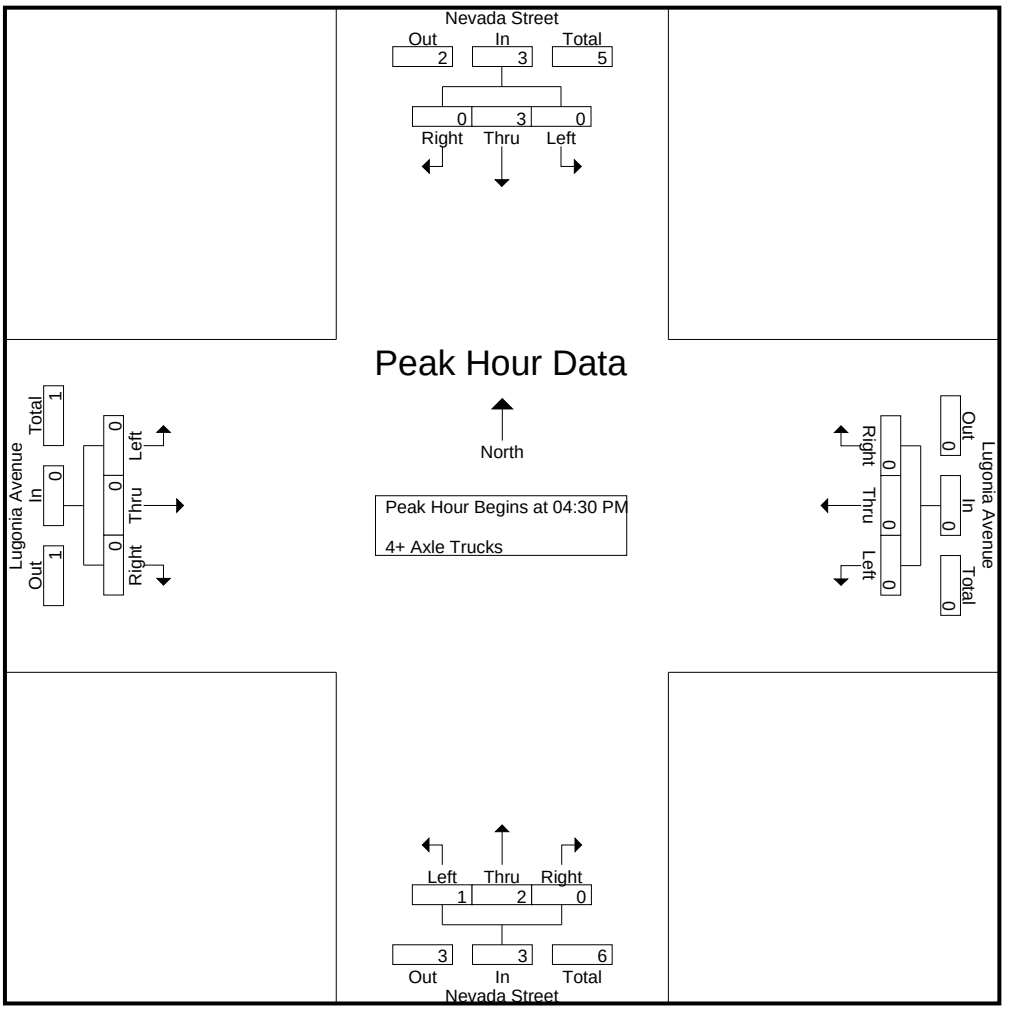
City of Redlands
N/S: Nevada Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 02_RED_Nevada_Lugonia PM
Site Code : 07518579
Start Date : 8/14/2018
Page No : 2



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	**2**	0	**2**	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	**1**	0	0	1	0	0	0	0
+45 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	0	3	0	0	0	0	1	2	0	3	0	0	0	0
% App. Total	0	100	0		0	0	0		33.3	66.7	0		0	0	0	
PHF	.000	.375	.000	.375	.000	.000	.000	.000	.250	.500	.000	.750	.000	.000	.000	.000

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	6	26	32	0	0	0	31	7	38	70
07:15 AM	6	51	57	0	0	0	20	7	27	84
07:30 AM	6	60	66	0	0	0	17	9	26	92
07:45 AM	8	57	65	0	0	0	20	10	30	95
Total	26	194	220	0	0	0	88	33	121	341
08:00 AM	5	36	41	0	0	0	28	13	41	82
08:15 AM	6	42	48	0	0	0	28	2	30	78
08:30 AM	4	33	37	0	0	0	20	9	29	66
08:45 AM	5	39	44	0	0	0	40	3	43	87
Total	20	150	170	0	0	0	116	27	143	313
Grand Total	46	344	390	0	0	0	204	60	264	654
Apprch %	11.8	88.2		0	0		77.3	22.7		
Total %	7	52.6	59.6	0	0	0	31.2	9.2	40.4	
Passenger Vehicles	46	337	383	0	0	0	198	60	258	641
% Passenger Vehicles	100	98	98.2	0	0	0	97.1	100	97.7	98
Large 2 Axle Vehicles	0	1	1	0	0	0	0	0	0	1
% Large 2 Axle Vehicles	0	0.3	0.3	0	0	0	0	0	0	0.2
3 Axle Vehicles	0	2	2	0	0	0	5	0	5	7
% 3 Axle Vehicles	0	0.6	0.5	0	0	0	2.5	0	1.9	1.1
4+ Axle Trucks	0	4	4	0	0	0	1	0	1	5
% 4+ Axle Trucks	0	1.2	1	0	0	0	0.5	0	0.4	0.8

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	6	51	57	0	0	0	20	7	27	84
07:30 AM	6	**60**	**66**	0	0	0	17	9	26	92
07:45 AM	**8**	57	65	0	0	0	20	10	30	**95**
08:00 AM	5	36	41	0	0	0	**28**	**13**	**41**	82
Total Volume	25	204	229	0	0	0	85	39	124	353
% App. Total	10.9	89.1		0	0		68.5	31.5		
PHF	.781	.850	.867	.000	.000	.000	.759	.750	.756	.929

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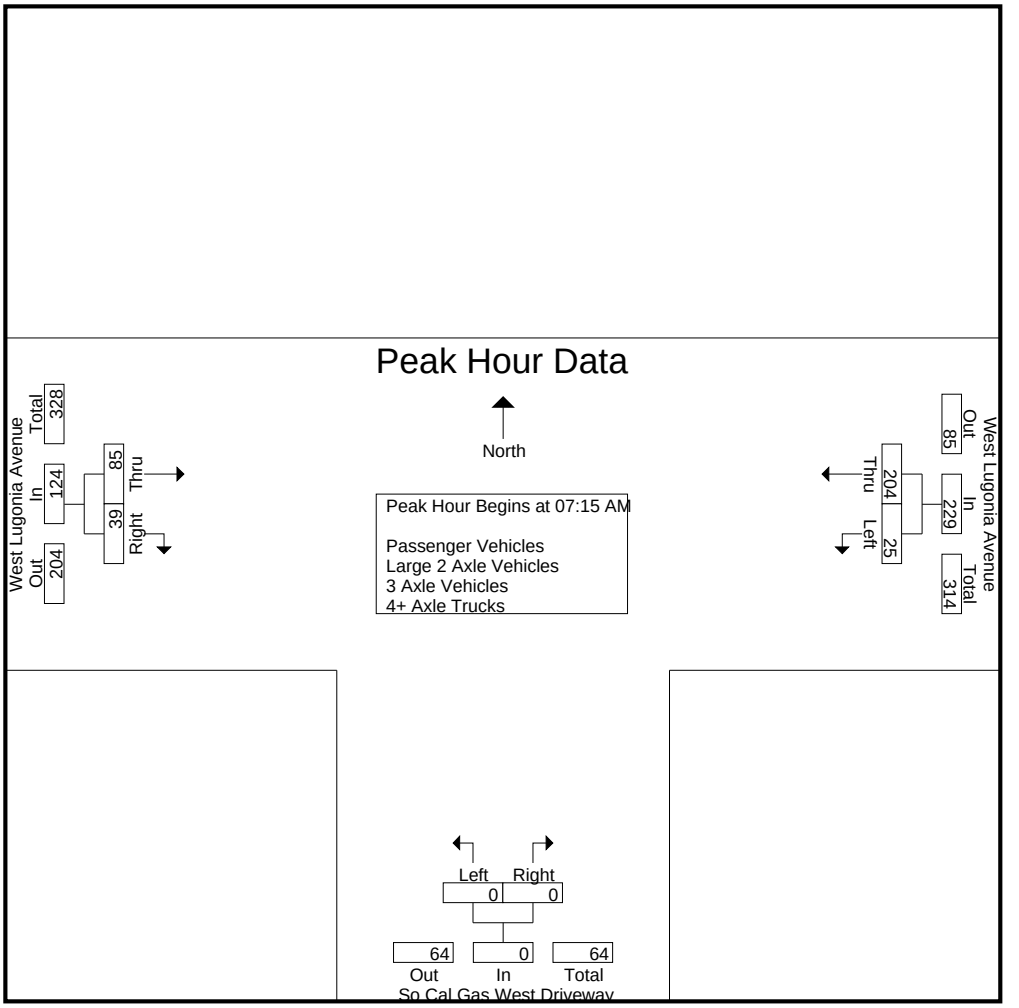
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:00 AM			08:00 AM		
+0 mins.	6	51	57	0	0	0	28	**13**	41
+15 mins.	6	**60**	**66**	0	0	0	28	2	30
+30 mins.	**8**	57	65	0	0	0	20	9	29
+45 mins.	5	36	41	0	0	0	**40**	3	**43**
Total Volume	25	204	229	0	0	0	116	27	143
% App. Total	10.9	89.1		0	0		81.1	18.9	
PHF	.781	.850	.867	.000	.000	.000	.725	.519	.831

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019
Page No : 1

Groups Printed- Passenger Vehicles

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	6	26	32	0	0	0	30	7	37	69
07:15 AM	6	50	56	0	0	0	19	7	26	82
07:30 AM	6	59	65	0	0	0	17	9	26	91
07:45 AM	8	55	63	0	0	0	19	10	29	92
Total	26	190	216	0	0	0	85	33	118	334
08:00 AM	5	36	41	0	0	0	28	13	41	82
08:15 AM	6	41	47	0	0	0	26	2	28	75
08:30 AM	4	33	37	0	0	0	20	9	29	66
08:45 AM	5	37	42	0	0	0	39	3	42	84
Total	20	147	167	0	0	0	113	27	140	307
Grand Total	46	337	383	0	0	0	198	60	258	641
Apprch %	12	88		0	0		76.7	23.3		
Total %	7.2	52.6	59.8	0	0	0	30.9	9.4	40.2	

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	6	50	56	0	0	0	19	7	26	82
07:30 AM	6	**59**	**65**	0	0	0	17	9	26	91
07:45 AM	**8**	55	63	0	0	0	19	10	29	**92**
08:00 AM	5	36	41	0	0	0	**28**	**13**	**41**	82
Total Volume	25	200	225	0	0	0	83	39	122	347
% App. Total	11.1	88.9		0	0		68	32		
PHF	.781	.847	.865	.000	.000	.000	.741	.750	.744	.943

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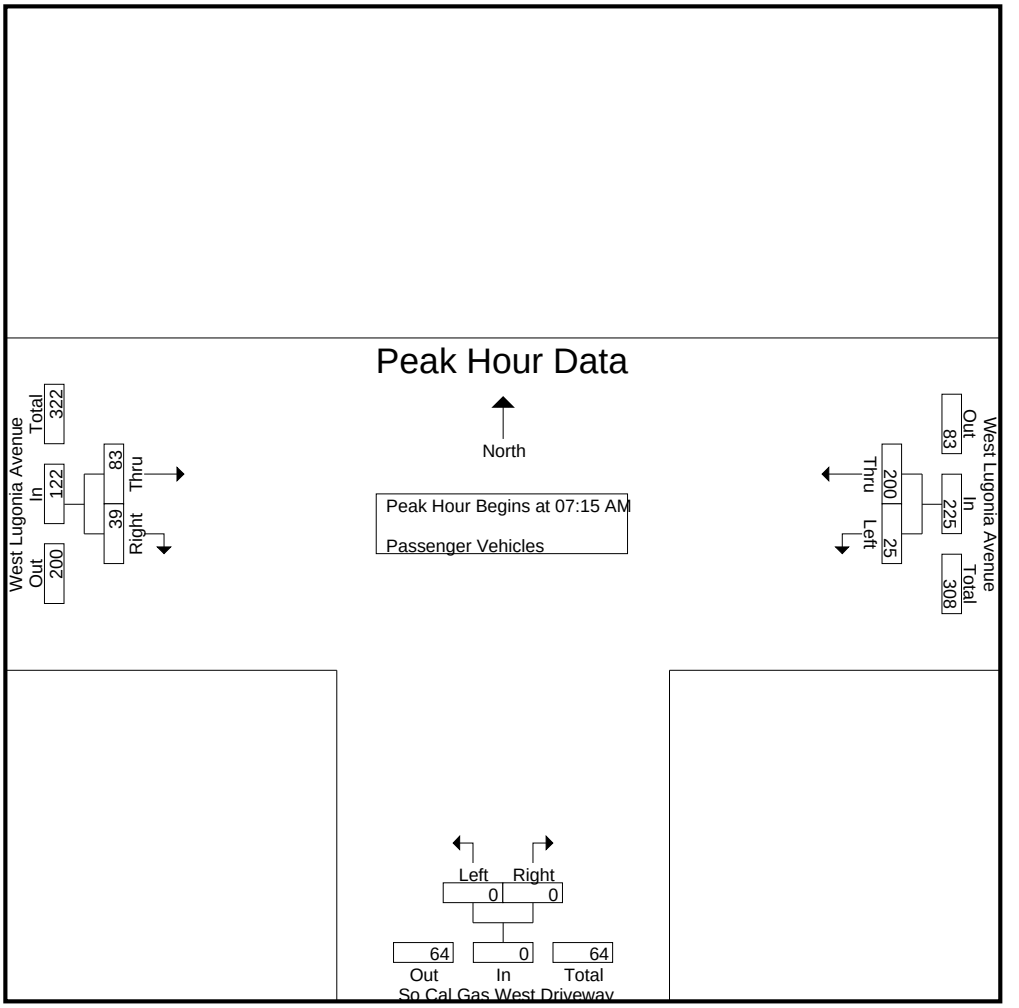
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	6	50	56	0	0	0	19	7	26
+15 mins.	6	**59**	**65**	0	0	0	17	9	26
+30 mins.	**8**	55	63	0	0	0	19	10	29
+45 mins.	5	36	41	0	0	0	**28**	**13**	**41**
Total Volume	25	200	225	0	0	0	83	39	122
% App. Total	11.1	88.9		0	0		68	32	
PHF	.781	.847	.865	.000	.000	.000	.741	.750	.744

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	1	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	0	0	0	0	0	0	1
Apprch %	0	100		0	0		0	0		
Total %	0	100	100	0	0	0	0	0	0	

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	**1**	**1**	0	0	0	0	0	0	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	0	0	1
% App. Total	0	100		0	0		0	0		
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250

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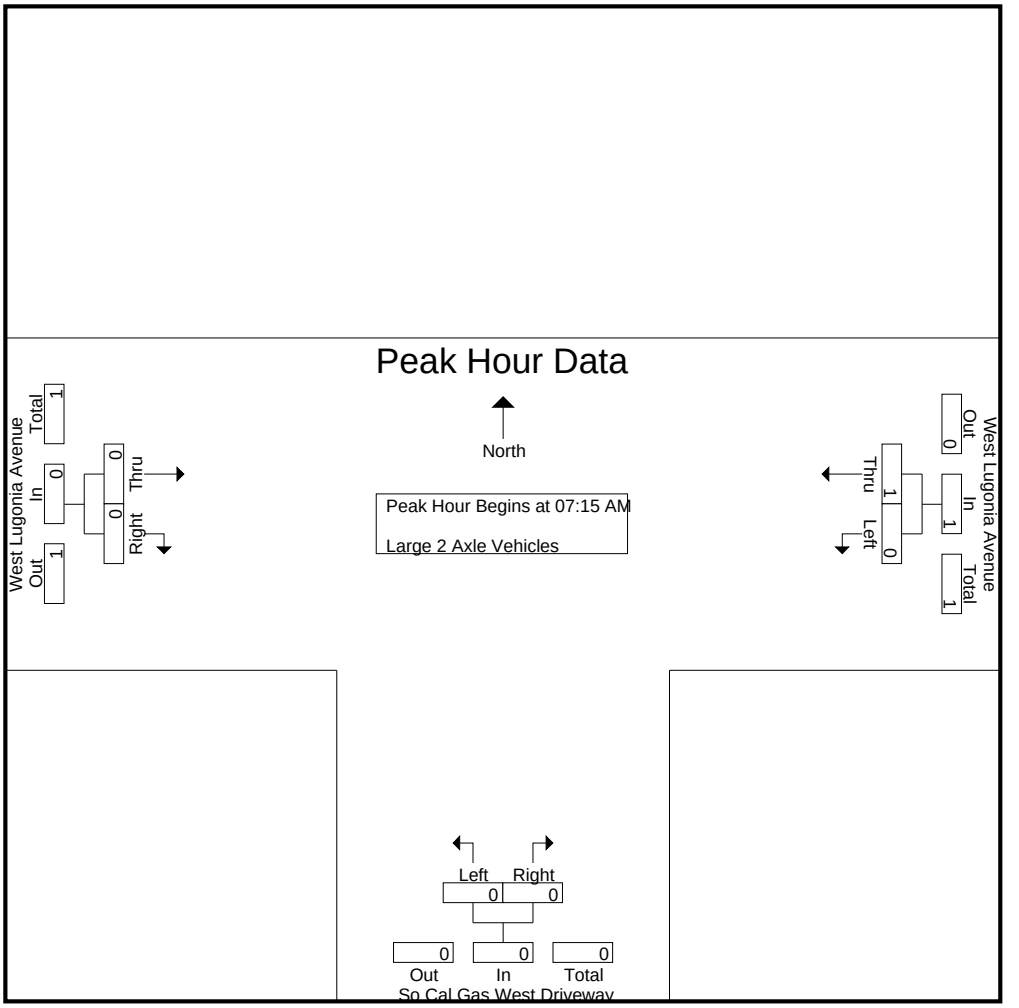
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	**1**	**1**	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	0	0	0
% App. Total	0	100		0	0		0	0	
PHF	.000	.250	.250	.000	.000	.000	.000	.000	.000

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019

Groups Printed- 3 Axle Vehicles

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	1	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	2	0	2	2
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	1	1	0	0	0	2	0	2	3
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	1	1	0	0	0	1	0	1	2
Total	0	2	2	0	0	0	3	0	3	5
Grand Total	0	2	2	0	0	0	5	0	5	7
Apprch %	0	100		0	0		100	0		
Total %	0	28.6	28.6	0	0	0	71.4	0	71.4	

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	0	0	0	0	0	**1**	0	**1**	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	1	0	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	2	0	2	2
% App. Total	0	0		0	0		100	0		
PHF	.000	.000	.000	.000	.000	.000	.500	.000	.500	.500

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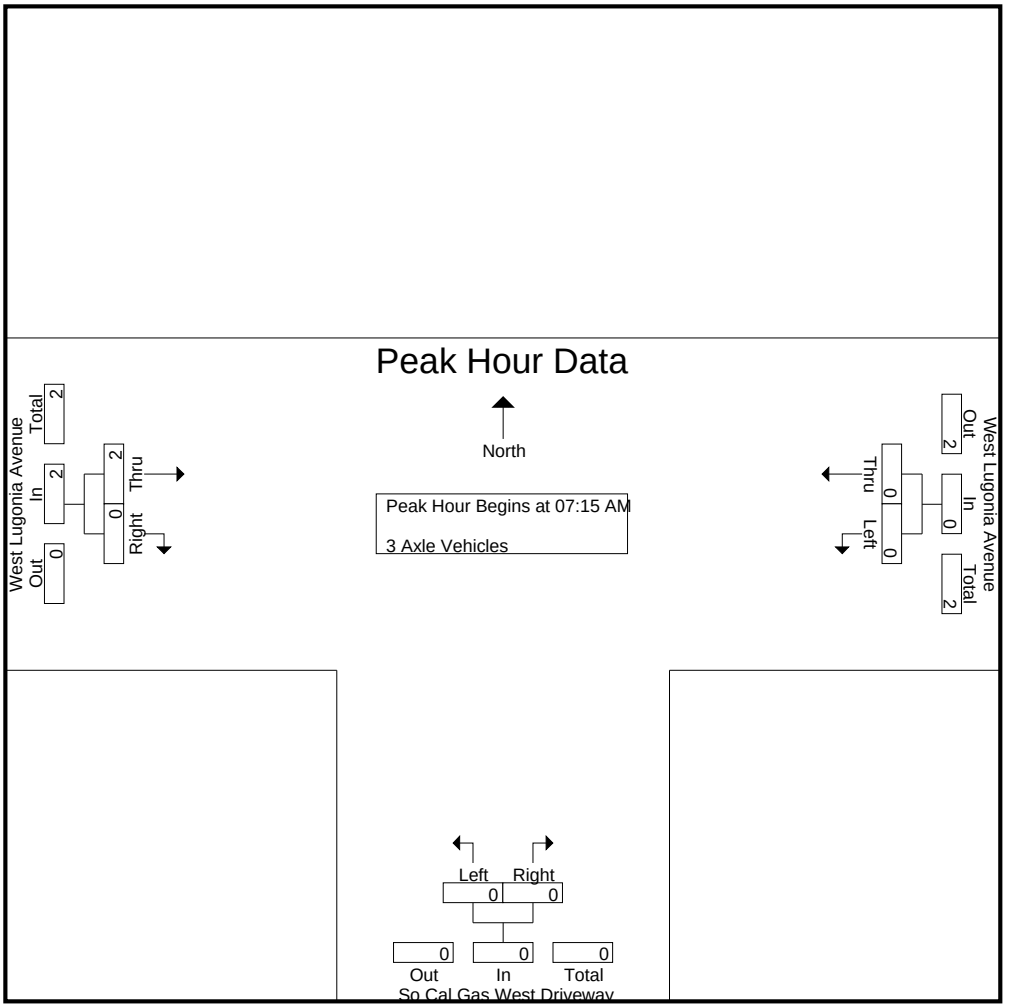
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	2	0	2
% App. Total	0	0		0	0		100	0	
PHF	.000	.000	.000	.000	.000	.000	.500	.000	.500

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019

Groups Printed- 4+ Axle Trucks

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	1	0	1	1
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	1	0	0	0	0	0	0	1
07:45 AM	0	2	2	0	0	0	0	0	0	2
Total	0	3	3	0	0	0	1	0	1	4
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	1	1	0	0	0	0	0	0	1
Total	0	1	1	0	0	0	0	0	0	1
Grand Total	0	4	4	0	0	0	1	0	1	5
Apprch %	0	100		0	0		100	0		
Total %	0	80	80	0	0	0	20	0	20	

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	1	0	0	0	0	0	0	1
07:45 AM	0	**2**	**2**	0	0	0	0	0	0	**2**
08:00 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	3	3	0	0	0	0	0	0	3
% App. Total	0	100		0	0		0	0		
PHF	.000	.375	.375	.000	.000	.000	.000	.000	.000	.375

Counts Unlimited
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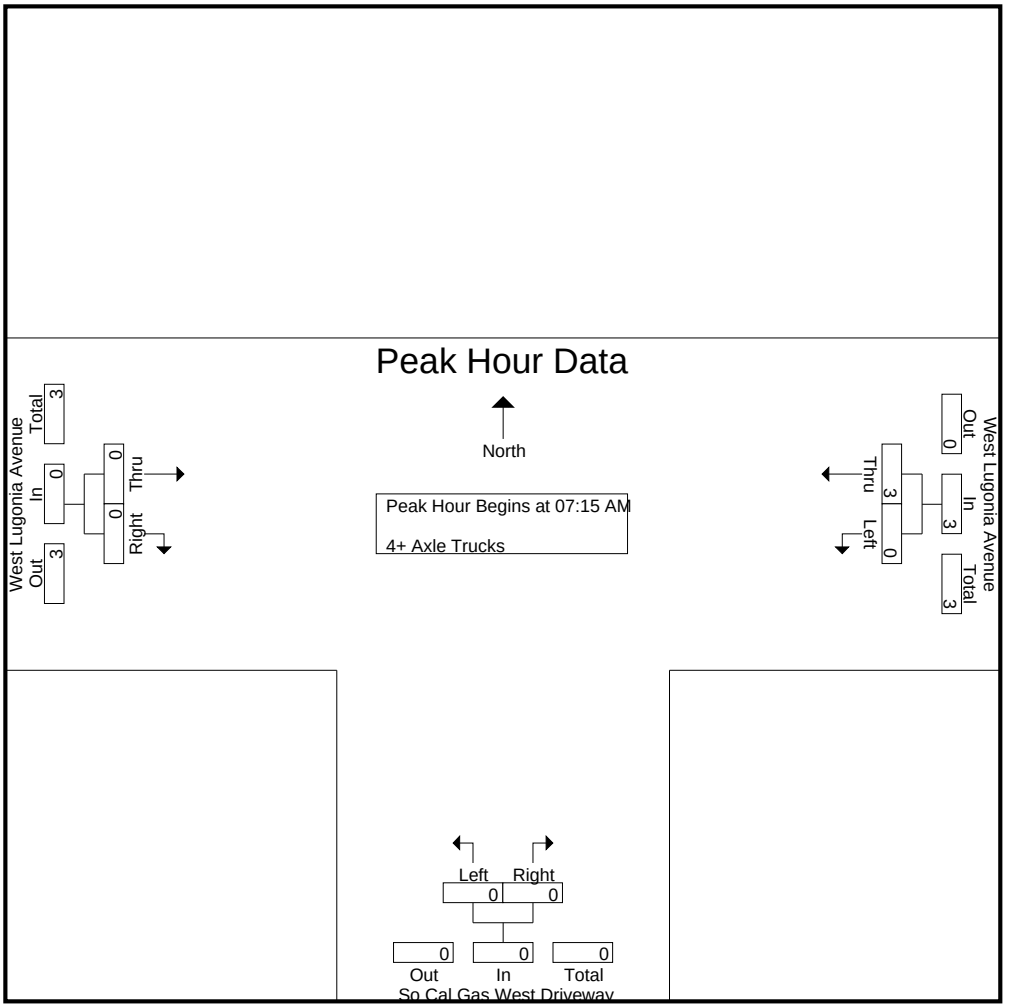
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia AM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM			07:15 AM			07:15 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	1	0	0	0	0	0	0
+30 mins.	0	**2**	**2**	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	3	3	0	0	0	0	0	0
% App. Total	0	100		0	0		0	0	
PHF	.000	.375	.375	.000	.000	.000	.000	.000	.000

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	62	62	0	0	0	61	1	62	124
04:15 PM	1	57	58	0	0	0	54	1	55	113
04:30 PM	0	73	73	0	0	0	50	1	51	124
04:45 PM	1	55	56	0	0	0	47	0	47	103
Total	2	247	249	0	0	0	212	3	215	464
05:00 PM	0	52	52	0	0	0	71	1	72	124
05:15 PM	1	50	51	0	0	0	80	0	80	131
05:30 PM	0	69	69	0	0	0	77	0	77	146
05:45 PM	0	48	48	0	0	0	51	0	51	99
Total	1	219	220	0	0	0	279	1	280	500
Grand Total	3	466	469	0	0	0	491	4	495	964
Apprch %	0.6	99.4		0	0		99.2	0.8		
Total %	0.3	48.3	48.7	0	0	0	50.9	0.4	51.3	
Passenger Vehicles	3	459	462	0	0	0	483	4	487	949
% Passenger Vehicles	100	98.5	98.5	0	0	0	98.4	100	98.4	98.4
Large 2 Axle Vehicles	0	1	1	0	0	0	0	0	0	1
% Large 2 Axle Vehicles	0	0.2	0.2	0	0	0	0	0	0	0.1
3 Axle Vehicles	0	4	4	0	0	0	5	0	5	9
% 3 Axle Vehicles	0	0.9	0.9	0	0	0	1	0	1	0.9
4+ Axle Trucks	0	2	2	0	0	0	3	0	3	5
% 4+ Axle Trucks	0	0.4	0.4	0	0	0	0.6	0	0.6	0.5

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**1**	55	56	0	0	0	47	0	47	103
05:00 PM	0	52	52	0	0	0	71	**1**	72	124
05:15 PM	1	50	51	0	0	0	**80**	0	**80**	131
05:30 PM	0	**69**	**69**	0	0	0	77	0	77	**146**
Total Volume	2	226	228	0	0	0	275	1	276	504
% App. Total	0.9	99.1		0	0		99.6	0.4		
PHF	.500	.819	.826	.000	.000	.000	.859	.250	.863	.863

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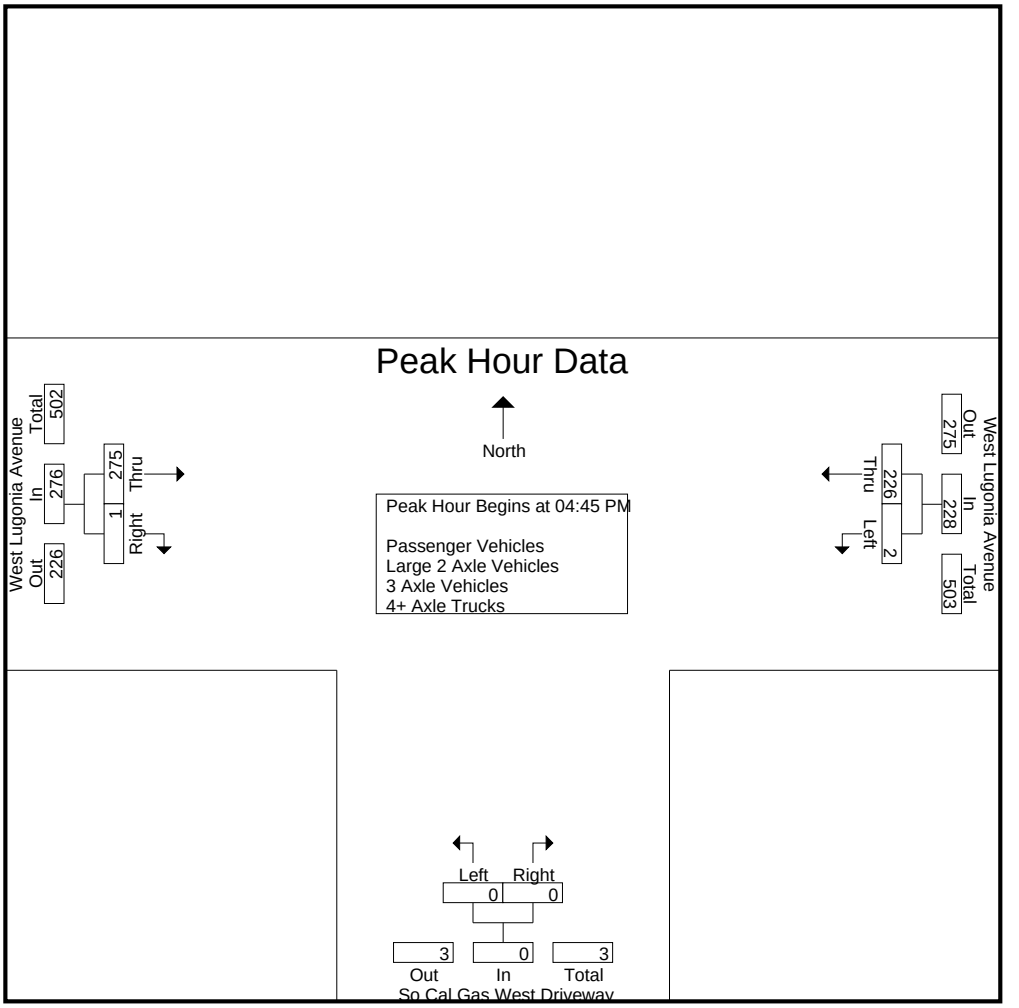
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			05:00 PM		
+0 mins.	0	62	62	0	0	0	71	**1**	72
+15 mins.	**1**	57	58	0	0	0	**80**	0	**80**
+30 mins.	0	**73**	**73**	0	0	0	77	0	77
+45 mins.	1	55	56	0	0	0	51	0	51
Total Volume	2	247	249	0	0	0	279	1	280
% App. Total	0.8	99.2		0	0		99.6	0.4	
PHF	.500	.846	.853	.000	.000	.000	.872	.250	.875

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019
Page No : 1

Groups Printed- Passenger Vehicles

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	62	62	0	0	0	61	1	62	124
04:15 PM	1	56	57	0	0	0	53	1	54	111
04:30 PM	0	72	72	0	0	0	50	1	51	123
04:45 PM	1	55	56	0	0	0	47	0	47	103
Total	2	245	247	0	0	0	211	3	214	461
05:00 PM	0	51	51	0	0	0	69	1	70	121
05:15 PM	1	48	49	0	0	0	76	0	76	125
05:30 PM	0	69	69	0	0	0	77	0	77	146
05:45 PM	0	46	46	0	0	0	50	0	50	96
Total	1	214	215	0	0	0	272	1	273	488
Grand Total	3	459	462	0	0	0	483	4	487	949
Apprch %	0.6	99.4		0	0		99.2	0.8		
Total %	0.3	48.4	48.7	0	0	0	50.9	0.4	51.3	

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**1**	55	56	0	0	0	47	0	47	103
05:00 PM	0	51	51	0	0	0	69	**1**	70	121
05:15 PM	1	48	49	0	0	0	76	0	76	125
05:30 PM	0	**69**	**69**	0	0	0	**77**	0	**77**	**146**
Total Volume	2	223	225	0	0	0	269	1	270	495
% App. Total	0.9	99.1		0	0		99.6	0.4		
PHF	.500	.808	.815	.000	.000	.000	.873	.250	.877	.848

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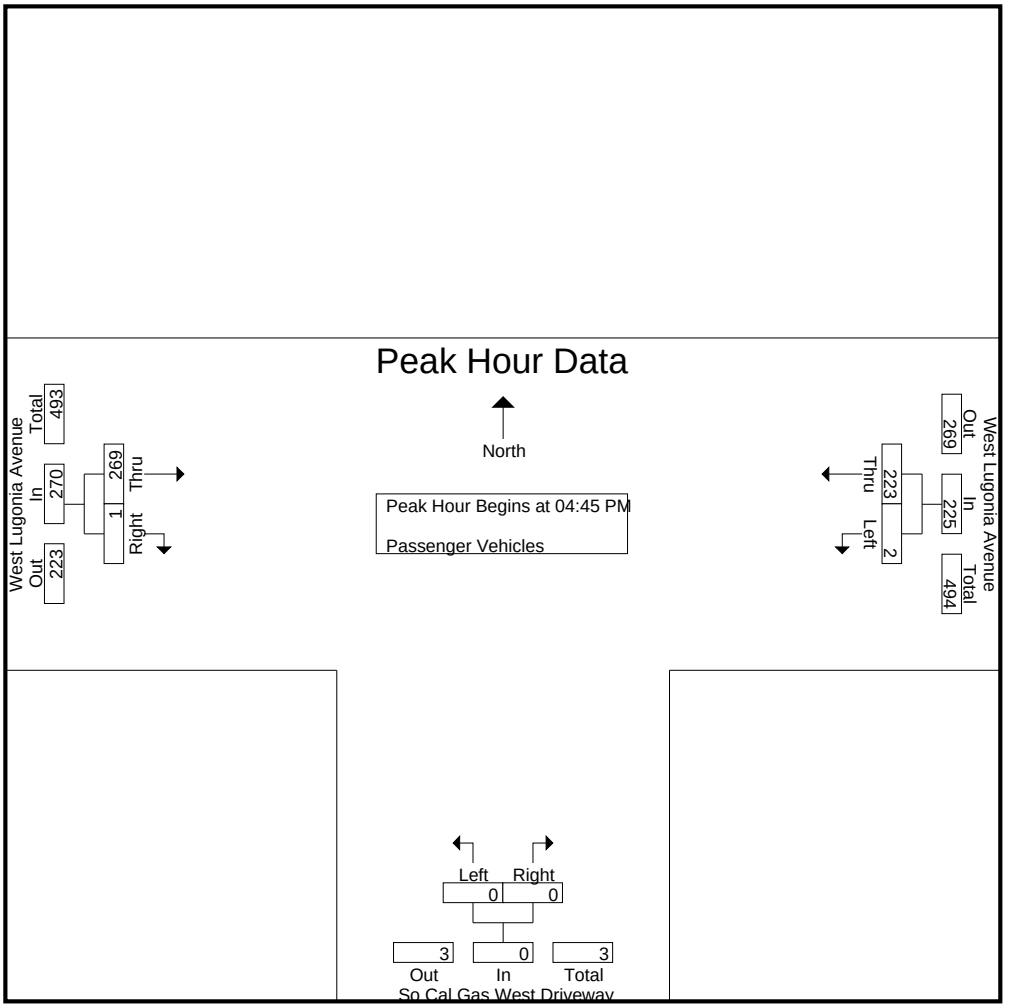
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	**1**	55	56	0	0	0	47	0	47
+15 mins.	0	51	51	0	0	0	69	**1**	70
+30 mins.	1	48	49	0	0	0	76	0	76
+45 mins.	0	**69**	**69**	0	0	0	**77**	0	**77**
Total Volume	2	223	225	0	0	0	269	1	270
% App. Total	0.9	99.1		0	0		99.6	0.4	
PHF	.500	.808	.815	.000	.000	.000	.873	.250	.877

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019

Groups Printed- Large 2 Axle Vehicles

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	1	1	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	1	0	0	0	0	0	0	1
Apprch %	0	100		0	0		0	0		
Total %	0	100	100	0	0	0	0	0	0	

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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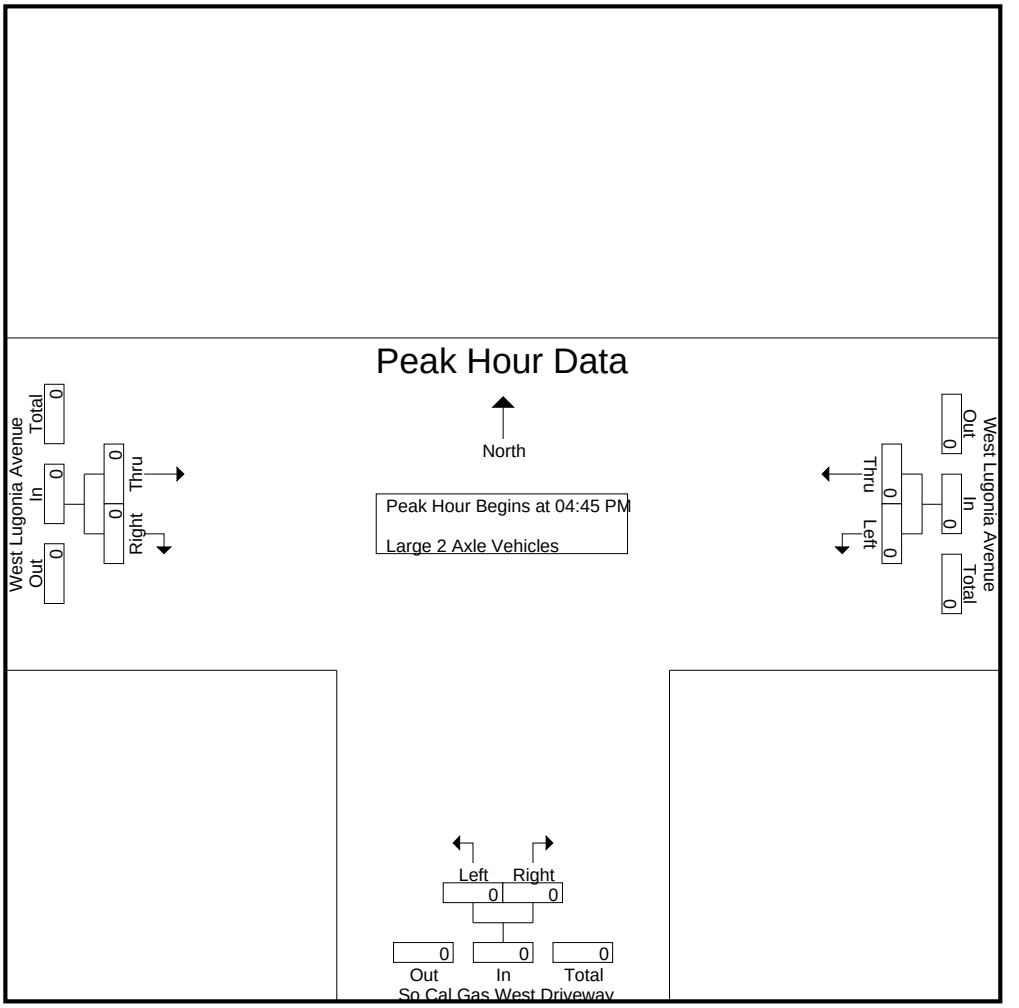
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019

Groups Printed- 3 Axle Vehicles

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	1	1	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	0	0	1	0	1	2
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	1	1	0	0	0	3	0	3	4
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	2	2	0	0	0	0	0	0	2
Total	0	3	3	0	0	0	4	0	4	7
Grand Total	0	4	4	0	0	0	5	0	5	9
Apprch %	0	100		0	0		100	0		
Total %	0	44.4	44.4	0	0	0	55.6	0	55.6	

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	1	0	1	1
05:15 PM	0	**1**	**1**	0	0	0	**3**	0	**3**	**4**
05:30 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	4	0	4	5
% App. Total	0	100		0	0		100	0		
PHF	.000	.250	.250	.000	.000	.000	.333	.000	.333	.313

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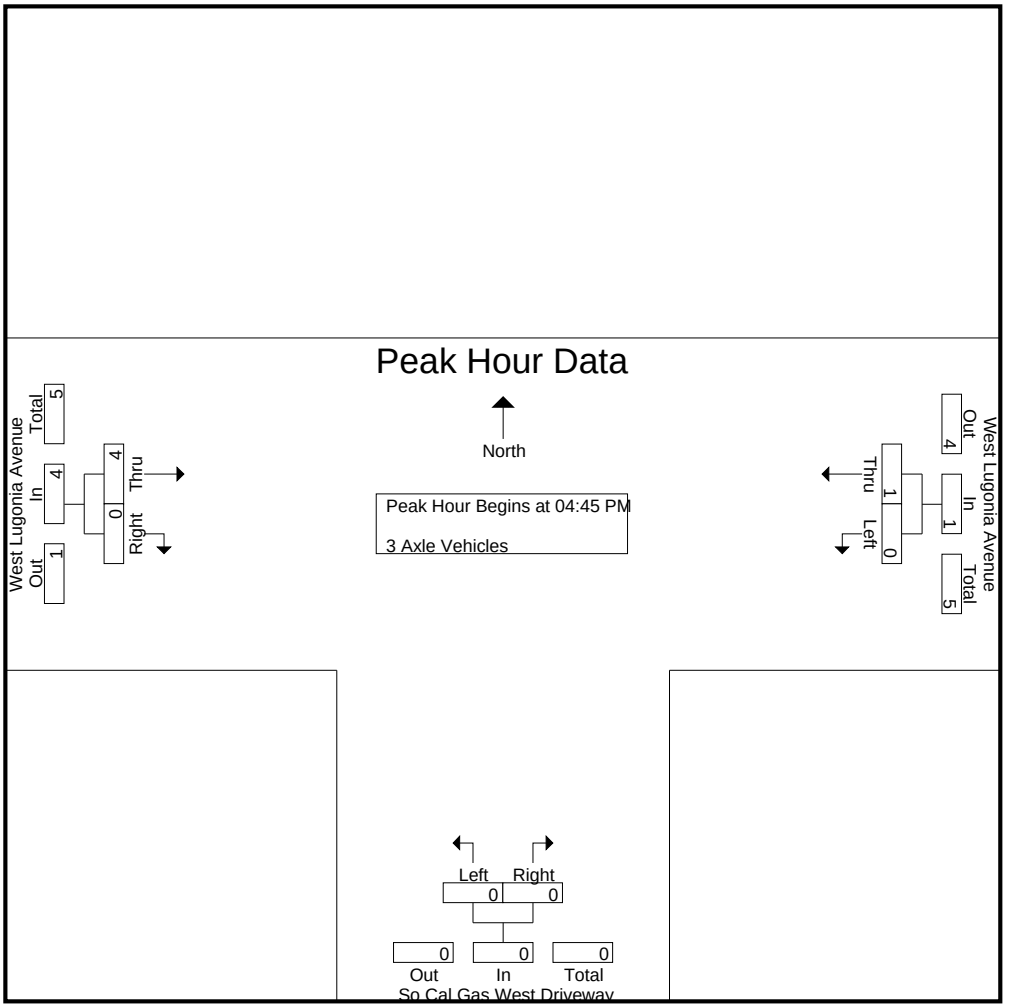
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	1	0	1
+30 mins.	0	**1**	**1**	0	0	0	**3**	0	**3**
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	0	0	4	0	4
% App. Total	0	100		0	0		100	0	
PHF	.000	.250	.250	.000	.000	.000	.333	.000	.333

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City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019
Page No : 1

Groups Printed- 4+ Axle Trucks

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	1	0	0	0	1	0	1	2
05:15 PM	0	1	1	0	0	0	1	0	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	1	1
Total	0	2	2	0	0	0	3	0	3	5
Grand Total	0	2	2	0	0	0	3	0	3	5
Apprch %	0	100		0	0		100	0		
Total %	0	40	40	0	0	0	60	0	60	

	West Lugonia Avenue Westbound			So Cal Gas West Driveway Northbound			West Lugonia Avenue Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	**1**	**1**	0	0	0	**1**	0	**1**	**2**
05:15 PM	0	1	1	0	0	0	1	0	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	2	0	0	0	2	0	2	4
% App. Total	0	100		0	0		100	0		
PHF	.000	.500	.500	.000	.000	.000	.500	.000	.500	.500

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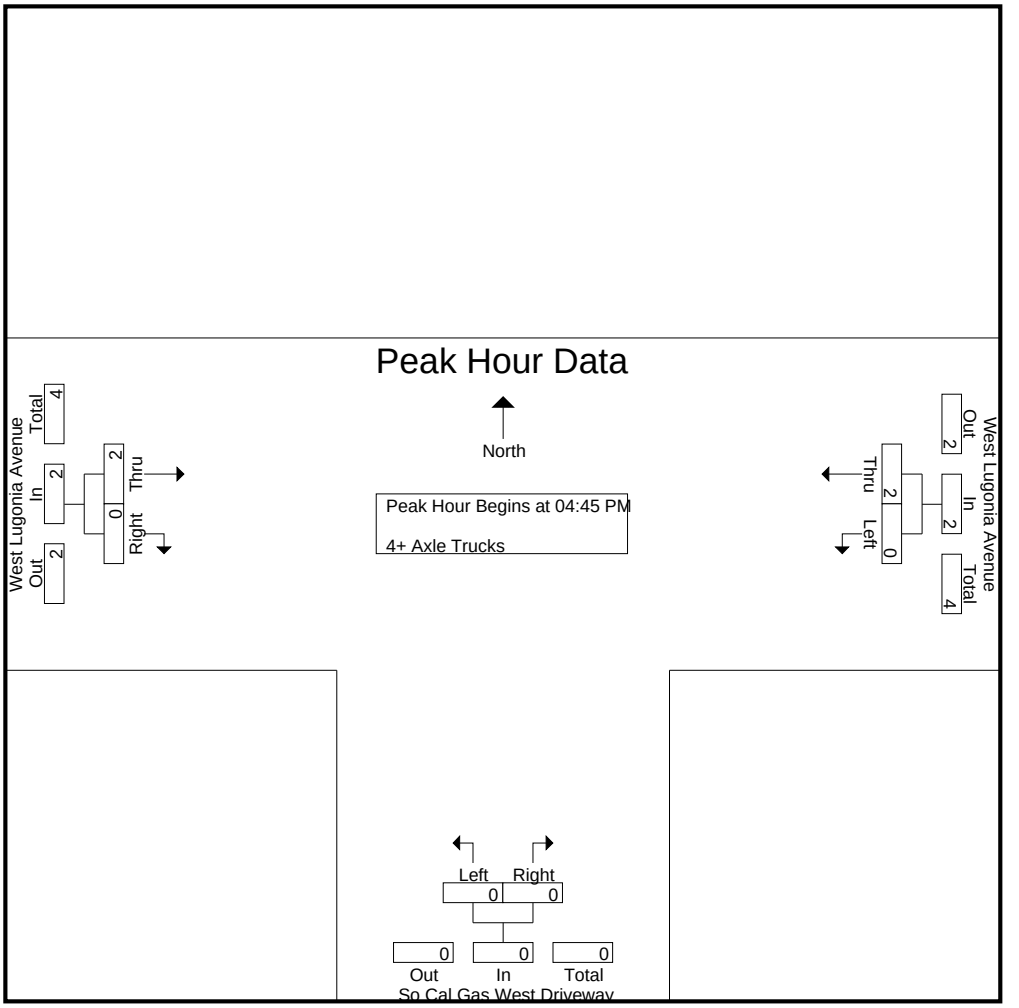
City of Redlands
N/S: So Cal Gas West Driveway
E/W: West Lugonia Avenue
Weather: Clear

File Name : RED_So Cal Gas W DW_Lugonia PM
Site Code : 22519046
Start Date : 1/23/2019



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:45 PM			04:45 PM			04:45 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	**1**	**1**	0	0	0	**1**	0	**1**
+30 mins.	0	1	1	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	2	2	0	0	0	2	0	2
% App. Total	0	100		0	0		100	0	
PHF	.000	.500	.500	.000	.000	.000	.500	.000	.500

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	7	63	14	84	30	55	23	108	15	72	18	105	15	15	7	37	334
07:15 AM	2	69	16	87	39	65	19	123	14	67	20	101	24	13	4	41	352
07:30 AM	7	100	20	127	52	70	11	133	18	62	15	95	11	12	9	32	387
07:45 AM	7	95	36	138	42	89	16	147	22	81	27	130	19	19	12	50	465
Total	23	327	86	436	163	279	69	511	69	282	80	431	69	59	32	160	1538
08:00 AM	11	88	34	133	45	57	11	113	21	98	26	145	17	20	9	46	437
08:15 AM	15	80	22	117	50	53	6	109	12	72	34	118	22	18	10	50	394
08:30 AM	14	71	25	110	42	39	7	88	17	65	27	109	12	29	6	47	354
08:45 AM	12	106	32	150	44	43	7	94	21	84	22	127	17	33	7	57	428
Total	52	345	113	510	181	192	31	404	71	319	109	499	68	100	32	200	1613
Grand Total	75	672	199	946	344	471	100	915	140	601	189	930	137	159	64	360	3151
Apprch %	7.9	71	21		37.6	51.5	10.9		15.1	64.6	20.3		38.1	44.2	17.8		
Total %	2.4	21.3	6.3	30	10.9	14.9	3.2	29	4.4	19.1	6	29.5	4.3	5	2	11.4	
Passenger Vehicles	66	590	193	849	334	461	92	887	135	544	179	858	132	155	61	348	2942
% Passenger Vehicles	88	87.8	97	89.7	97.1	97.9	92	96.9	96.4	90.5	94.7	92.3	96.4	97.5	95.3	96.7	93.4
Large 2 Axle Vehicles	7	23	0	30	7	7	8	22	2	15	7	24	2	2	2	6	82
% Large 2 Axle Vehicles	9.3	3.4	0	3.2	2	1.5	8	2.4	1.4	2.5	3.7	2.6	1.5	1.3	3.1	1.7	2.6
3 Axle Vehicles	1	20	4	25	1	2	0	3	1	11	0	12	2	2	1	5	45
% 3 Axle Vehicles	1.3	3	2	2.6	0.3	0.4	0	0.3	0.7	1.8	0	1.3	1.5	1.3	1.6	1.4	1.4
4+ Axle Trucks	1	39	2	42	2	1	0	3	2	31	3	36	1	0	0	1	82
% 4+ Axle Trucks	1.3	5.8	1	4.4	0.6	0.2	0	0.3	1.4	5.2	1.6	3.9	0.7	0	0	0.3	2.6

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	7	**100**	20	127	**52**	70	11	133	18	62	15	95	11	12	9	32	387
07:45 AM	7	95	**36**	**138**	42	**89**	**16**	**147**	**22**	81	27	130	19	19	**12**	**50**	**465**
08:00 AM	11	88	34	133	45	57	11	113	21	**98**	26	**145**	17	**20**	9	46	437
08:15 AM	**15**	80	22	117	50	53	6	109	12	72	**34**	118	**22**	18	10	50	394
Total Volume	40	363	112	515	189	269	44	502	73	313	102	488	69	69	40	178	1683
% App. Total	7.8	70.5	21.7		37.6	53.6	8.8		15	64.1	20.9		38.8	38.8	22.5		
PHF	.667	.908	.778	.933	.909	.756	.688	.854	.830	.798	.750	.841	.784	.863	.833	.890	.905

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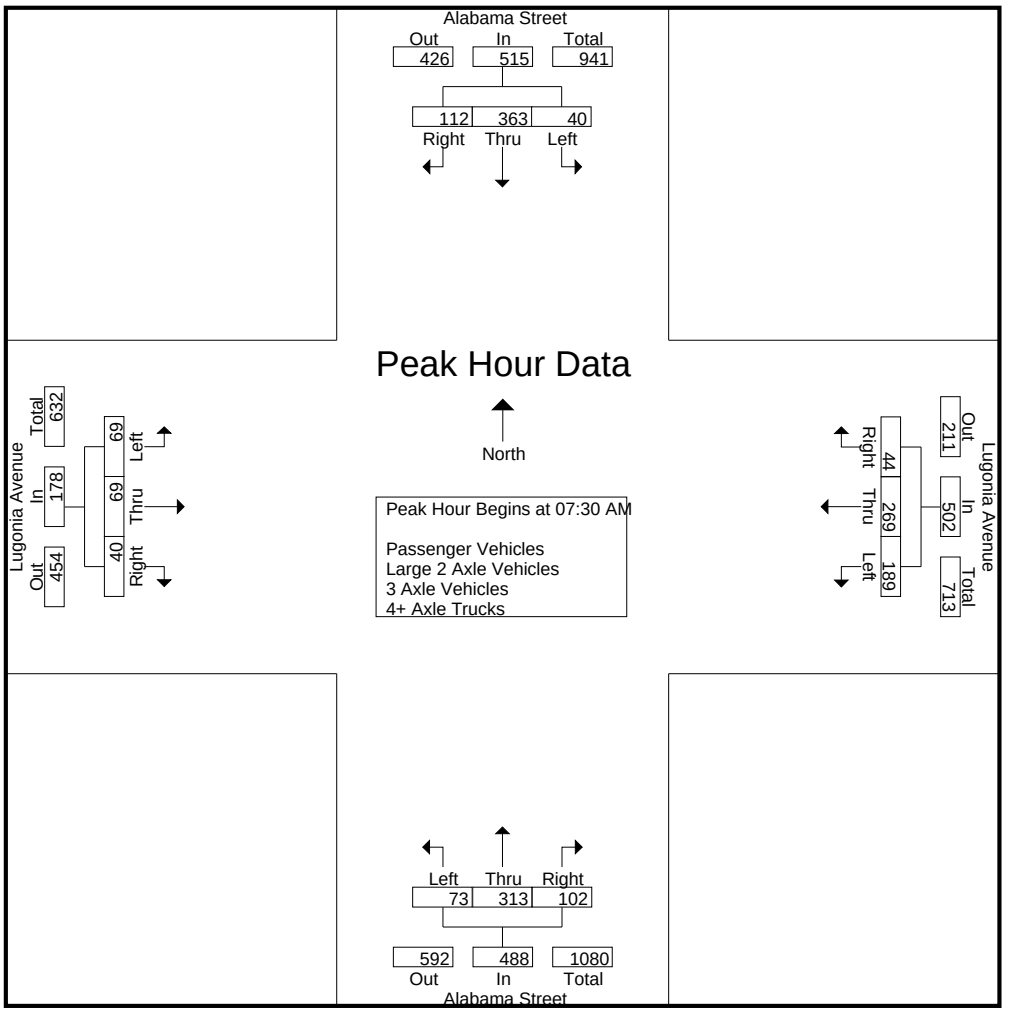
City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:45 AM				08:00 AM			
+0 mins.	7	**100**	20	127	39	65	**19**	123	**22**	81	27	130	17	20	9	46
+15 mins.	7	95	**36**	**138**	**52**	70	11	133	21	**98**	26	**145**	**22**	18	**10**	50
+30 mins.	11	88	34	133	42	**89**	16	**147**	12	72	**34**	118	12	29	6	47
+45 mins.	**15**	80	22	117	45	57	11	113	17	65	27	109	17	**33**	7	**57**
Total Volume	40	363	112	515	178	281	57	516	72	316	114	502	68	100	32	200
% App. Total	7.8	70.5	21.7		34.5	54.5	11		14.3	62.9	22.7		34	50	16	
PHF	.667	.908	.778	.933	.856	.789	.750	.878	.818	.806	.838	.866	.773	.758	.800	.877

Counts Unlimited
PO Box 1178
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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018
Page No : 1

Groups Printed- Passenger Vehicles

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	4	54	13	71	28	54	21	103	14	64	16	94	15	14	6	35	303
07:15 AM	2	62	15	79	37	65	18	120	13	60	17	90	22	12	4	38	327
07:30 AM	7	89	20	116	50	68	11	129	17	60	15	92	11	12	9	32	369
07:45 AM	6	87	33	126	42	88	14	144	22	74	25	121	19	19	11	49	440
Total	19	292	81	392	157	275	64	496	66	258	73	397	67	57	30	154	1439
08:00 AM	9	77	34	120	45	57	11	113	19	88	26	133	16	20	9	45	411
08:15 AM	13	65	22	100	47	51	4	102	12	66	33	111	22	17	10	49	362
08:30 AM	13	62	24	99	41	38	7	86	17	56	25	98	11	28	5	44	327
08:45 AM	12	94	32	138	44	40	6	90	21	76	22	119	16	33	7	56	403
Total	47	298	112	457	177	186	28	391	69	286	106	461	65	98	31	194	1503
Grand Total	66	590	193	849	334	461	92	887	135	544	179	858	132	155	61	348	2942
Apprch %	7.8	69.5	22.7		37.7	52	10.4		15.7	63.4	20.9		37.9	44.5	17.5		
Total %	2.2	20.1	6.6	28.9	11.4	15.7	3.1	30.1	4.6	18.5	6.1	29.2	4.5	5.3	2.1	11.8	

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	7	**89**	20	116	**50**	68	11	129	17	60	15	92	11	12	9	32	369
07:45 AM	6	87	33	**126**	42	**88**	**14**	**144**	**22**	74	25	121	19	19	**11**	**49**	**440**
08:00 AM	9	77	**34**	120	45	57	11	113	19	**88**	26	**133**	16	**20**	9	45	411
08:15 AM	**13**	65	22	100	47	51	4	102	12	66	**33**	111	**22**	17	10	49	362
Total Volume	35	318	109	462	184	264	40	488	70	288	99	457	68	68	39	175	1582
% App. Total	7.6	68.8	23.6		37.7	54.1	8.2		15.3	63	21.7		38.9	38.9	22.3		
PHF	.673	.893	.801	.917	.920	.750	.714	.847	.795	.818	.750	.859	.773	.850	.886	.893	.899

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018
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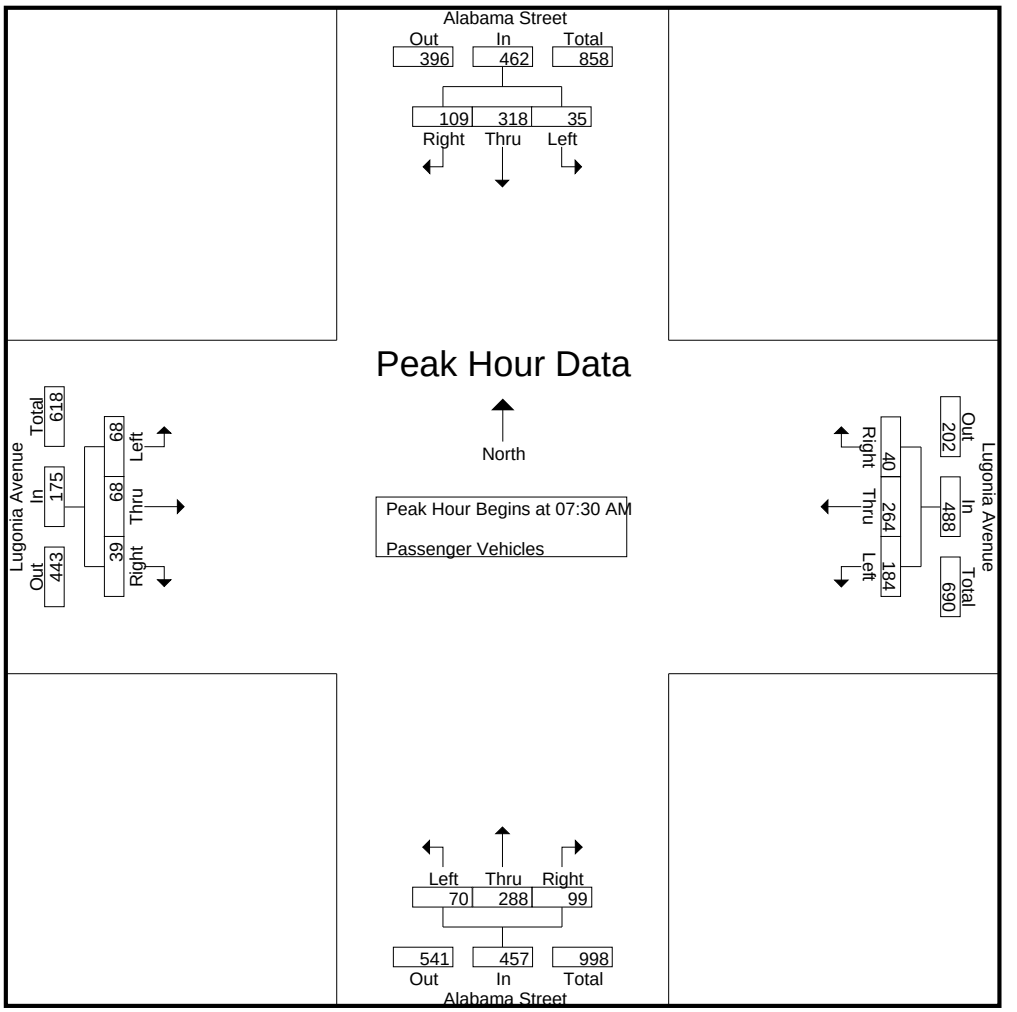

Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	7	**89**	20	116	**50**	68	11	129	17	60	15	92	11	12	9	32
+15 mins.	6	87	33	**126**	42	**88**	**14**	**144**	**22**	74	25	121	19	19	**11**	**49**
+30 mins.	9	77	**34**	120	45	57	11	113	19	**88**	26	**133**	16	**20**	9	45
+45 mins.	**13**	65	22	100	47	51	4	102	12	66	**33**	111	**22**	17	10	49
Total Volume	35	318	109	462	184	264	40	488	70	288	99	457	68	68	39	175
% App. Total	7.6	68.8	23.6		37.7	54.1	8.2		15.3	63	21.7		38.9	38.9	22.3	
PHF	.673	.893	.801	.917	.920	.750	.714	.847	.795	.818	.750	.859	.773	.850	.886	.893

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	2	4	0	6	1	1	2	4	1	2	2	5	0	0	0	0	15
07:15 AM	0	1	0	1	1	0	1	2	0	3	1	4	0	1	0	1	8
07:30 AM	0	3	0	3	1	1	0	2	1	1	0	2	0	0	0	0	7
07:45 AM	1	1	0	2	0	1	2	3	0	3	2	5	0	0	1	1	11
Total	3	9	0	12	3	3	5	11	2	9	5	16	0	1	1	2	41
08:00 AM	1	3	0	4	0	0	0	0	0	2	0	2	0	0	0	0	6
08:15 AM	2	5	0	7	3	0	2	5	0	2	0	2	0	0	0	0	14
08:30 AM	1	2	0	3	1	1	0	2	0	1	2	3	1	1	1	3	11
08:45 AM	0	4	0	4	0	3	1	4	0	1	0	1	1	0	0	1	10
Total	4	14	0	18	4	4	3	11	0	6	2	8	2	1	1	4	41
Grand Total	7	23	0	30	7	7	8	22	2	15	7	24	2	2	2	6	82
Apprch %	23.3	76.7	0		31.8	31.8	36.4		8.3	62.5	29.2		33.3	33.3	33.3		
Total %	8.5	28	0	36.6	8.5	8.5	9.8	26.8	2.4	18.3	8.5	29.3	2.4	2.4	2.4	7.3	

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	3	0	3	1	**1**	0	2	**1**	1	0	2	0	0	0	0	7
07:45 AM	1	1	0	2	0	1	**2**	3	0	**3**	**2**	**5**	0	0	**1**	**1**	11
08:00 AM	1	3	0	4	0	0	0	0	0	2	0	2	0	0	0	0	6
08:15 AM	**2**	**5**	0	**7**	**3**	0	2	**5**	0	2	0	2	0	0	0	0	**14**
Total Volume	4	12	0	16	4	2	4	10	1	8	2	11	0	0	1	1	38
% App. Total	25	75	0		40	20	40		9.1	72.7	18.2		0	0	100		
PHF	.500	.600	.000	.571	.333	.500	.500	.500	.250	.667	.250	.550	.000	.000	.250	.250	.679

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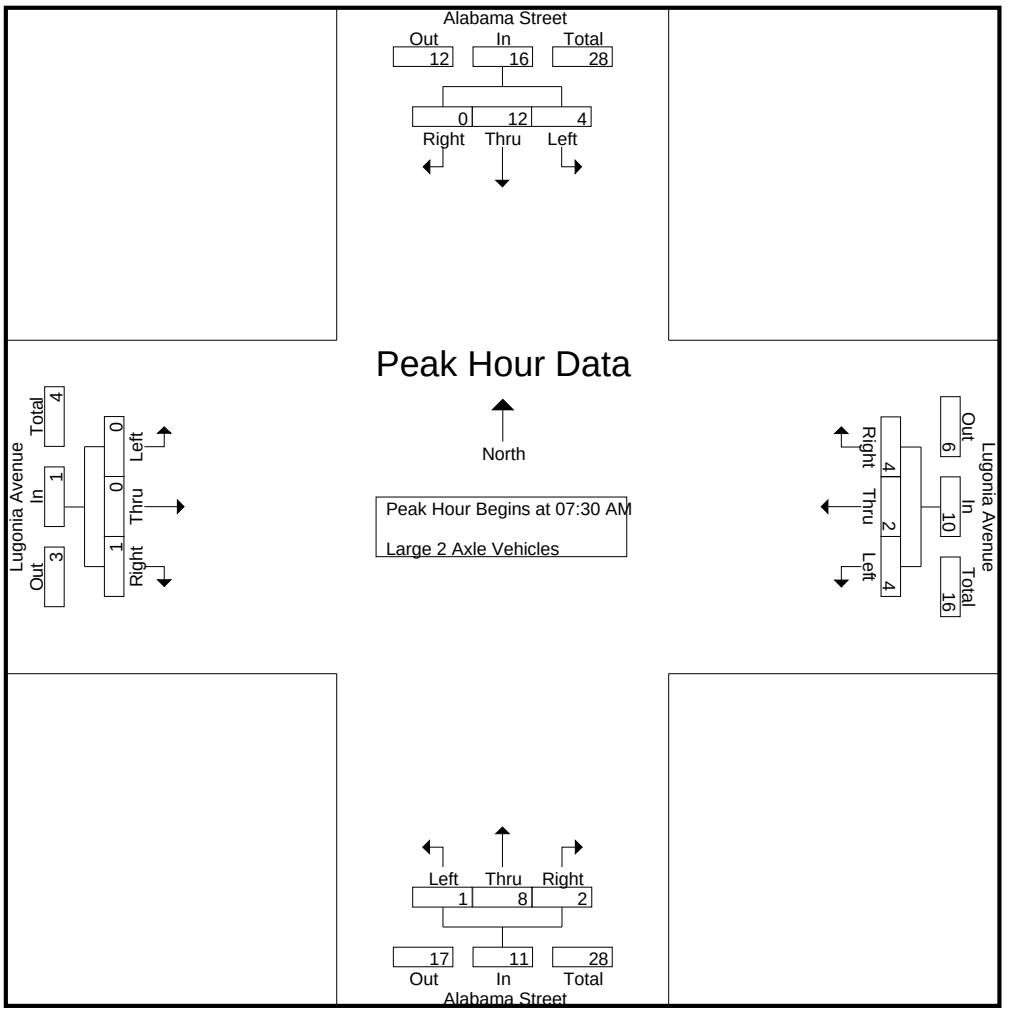
City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018
Page No : 2



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	3	0	3	1	**1**	0	2	**1**	1	0	2	0	0	0	0
+15 mins.	1	1	0	2	0	1	**2**	3	0	**3**	**2**	**5**	0	0	**1**	**1**
+30 mins.	1	3	0	4	0	0	0	0	0	2	0	2	0	0	0	0
+45 mins.	**2**	**5**	0	**7**	**3**	0	2	**5**	0	2	0	2	0	0	0	0
Total Volume	4	12	0	16	4	2	4	10	1	8	2	11	0	0	1	1
% App. Total	25	75	0		40	20	40		9.1	72.7	18.2		0	0	100	
PHF	.500	.600	.000	.571	.333	.500	.500	.500	.250	.667	.250	.550	.000	.000	.250	.250

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	2	1	4	1	0	0	1	0	3	0	3	0	1	1	2	10
07:15 AM	0	3	1	4	0	0	0	0	1	1	0	2	2	0	0	2	8
07:30 AM	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	3
07:45 AM	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	1	9	3	13	1	1	0	2	1	4	0	5	2	1	1	4	24
08:00 AM	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	5
08:15 AM	0	3	0	3	0	1	0	1	0	1	0	1	0	1	0	1	6
08:30 AM	0	1	1	2	0	0	0	0	0	2	0	2	0	0	0	0	4
08:45 AM	0	5	0	5	0	0	0	0	0	1	0	1	0	0	0	0	6
Total	0	11	1	12	0	1	0	1	0	7	0	7	0	1	0	1	21
Grand Total	1	20	4	25	1	2	0	3	1	11	0	12	2	2	1	5	45
Apprch %	4	80	16		33.3	66.7	0		8.3	91.7	0		40	40	20		
Total %	2.2	44.4	8.9	55.6	2.2	4.4	0	6.7	2.2	24.4	0	26.7	4.4	4.4	2.2	11.1	

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	2	0	2	0	**1**	0	**1**	0	0	0	0	0	0	0	0	3
07:45 AM	0	2	**1**	**3**	0	0	0	0	0	0	0	0	0	0	0	0	3
08:00 AM	0	2	0	2	0	0	0	0	0	**3**	0	**3**	0	0	0	0	5
08:15 AM	0	**3**	0	3	0	1	0	1	0	1	0	1	0	**1**	0	**1**	**6**
Total Volume	0	9	1	10	0	2	0	2	0	4	0	4	0	1	0	1	17
% App. Total	0	90	10		0	100	0		0	100	0		0	100	0		
PHF	.000	.750	.250	.833	.000	.500	.000	.500	.000	.333	.000	.333	.000	.250	.000	.250	.708

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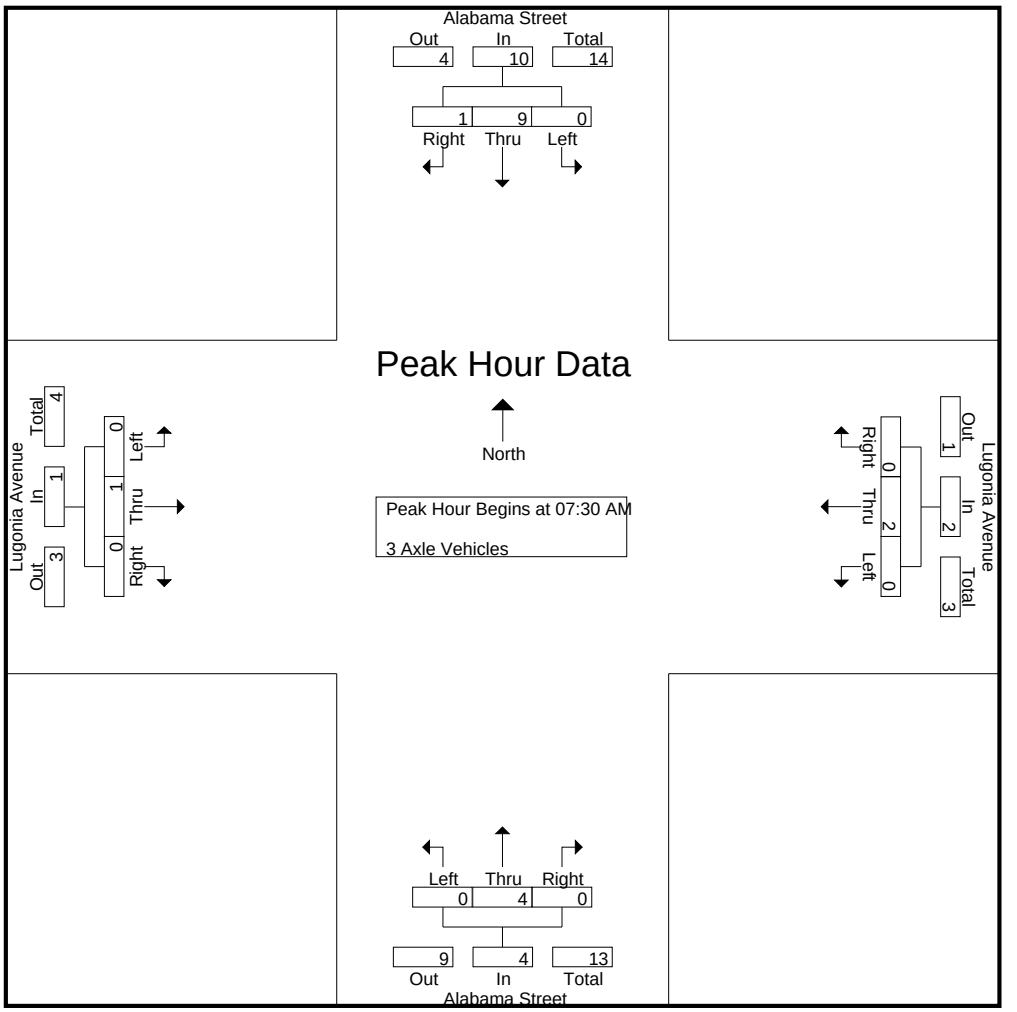
City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	2	0	2	0	**1**	0	**1**	0	0	0	0	0	0	0	0
+15 mins.	0	2	**1**	**3**	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	2	0	2	0	0	0	0	0	**3**	0	**3**	0	0	0	0
+45 mins.	0	**3**	0	3	0	1	0	1	0	1	0	1	0	**1**	0	**1**
Total Volume	0	9	1	10	0	2	0	2	0	4	0	4	0	1	0	1
% App. Total	0	90	10		0	100	0		0	100	0		0	100	0	
PHF	.000	.750	.250	.833	.000	.500	.000	.500	.000	.333	.000	.333	.000	.250	.000	.250

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia AM
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Groups Printed- 4+ Axle Trucks

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	0	3	0	3	0	0	0	0	0	3	0	3	0	0	0	0	6
07:15 AM	0	3	0	3	1	0	0	1	0	3	2	5	0	0	0	0	9
07:30 AM	0	6	0	6	1	0	0	1	0	1	0	1	0	0	0	0	8
07:45 AM	0	5	2	7	0	0	0	0	0	4	0	4	0	0	0	0	11
Total	0	17	2	19	2	0	0	2	0	11	2	13	0	0	0	0	34
08:00 AM	1	6	0	7	0	0	0	0	2	5	0	7	1	0	0	1	15
08:15 AM	0	7	0	7	0	1	0	1	0	3	1	4	0	0	0	0	12
08:30 AM	0	6	0	6	0	0	0	0	0	6	0	6	0	0	0	0	12
08:45 AM	0	3	0	3	0	0	0	0	0	6	0	6	0	0	0	0	9
Total	1	22	0	23	0	1	0	1	2	20	1	23	1	0	0	1	48
Grand Total	1	39	2	42	2	1	0	3	2	31	3	36	1	0	0	1	82
Apprch %	2.4	92.9	4.8		66.7	33.3	0		5.6	86.1	8.3		100	0	0		
Total %	1.2	47.6	2.4	51.2	2.4	1.2	0	3.7	2.4	37.8	3.7	43.9	1.2	0	0	1.2	

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	6	0	6	**1**	0	0	**1**	0	1	0	1	0	0	0	0	8
07:45 AM	0	5	**2**	**7**	0	0	0	0	0	4	0	4	0	0	0	0	11
08:00 AM	**1**	6	0	7	0	0	0	0	**2**	**5**	0	**7**	**1**	0	0	**1**	**15**
08:15 AM	0	**7**	0	7	0	**1**	0	1	0	3	**1**	4	0	0	0	0	12
Total Volume	1	24	2	27	1	1	0	2	2	13	1	16	1	0	0	1	46
% App. Total	3.7	88.9	7.4		50	50	0		12.5	81.2	6.2		100	0	0		
PHF	.250	.857	.250	.964	.250	.250	.000	.500	.250	.650	.250	.571	.250	.000	.000	.250	.767

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
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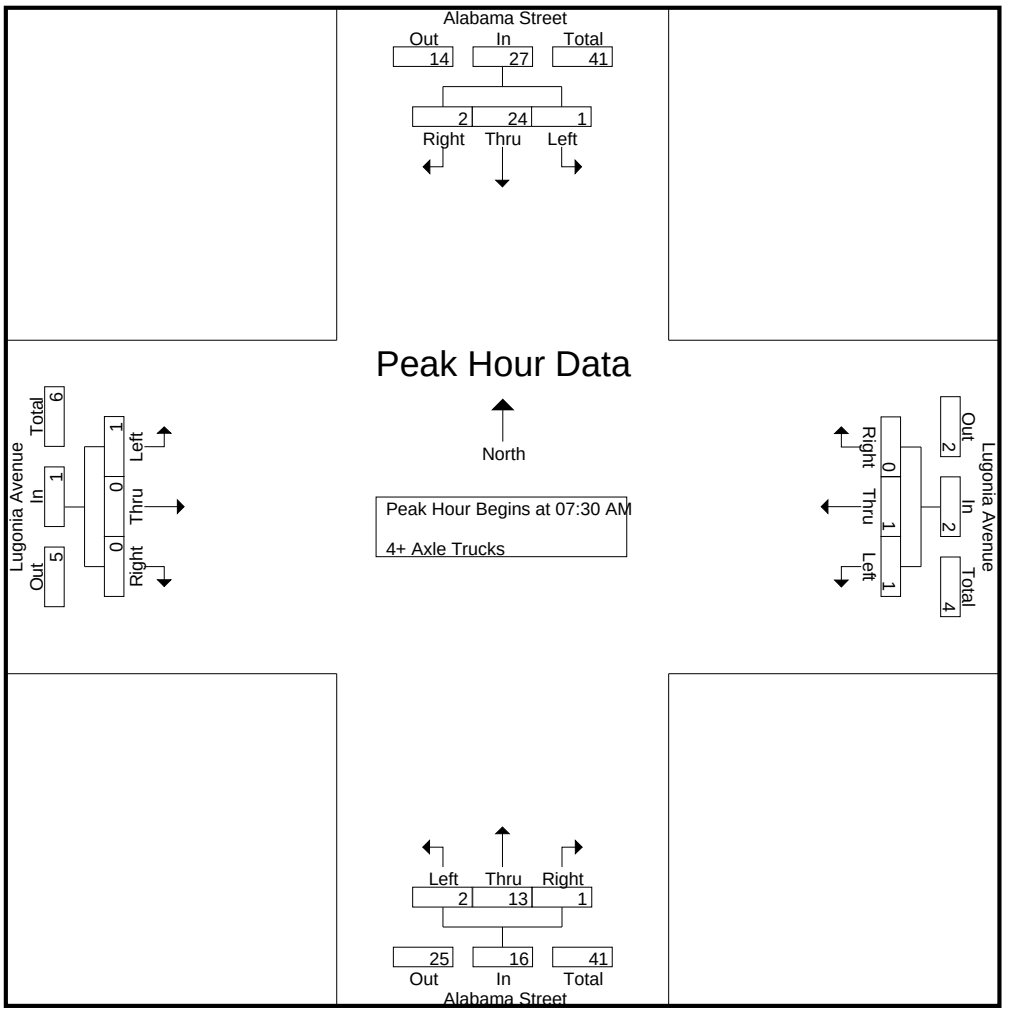
File Name : 07_RED_Alabama_Lugonia AM
Site Code : 06718128
Start Date : 2/21/2018



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				07:30 AM			
+0 mins.	0	6	0	6	**1**	0	0	**1**	0	1	0	1	0	0	0	0
+15 mins.	0	5	**2**	**7**	0	0	0	0	0	4	0	4	0	0	0	0
+30 mins.	**1**	6	0	7	0	0	0	0	**2**	**5**	0	**7**	**1**	0	0	**1**
+45 mins.	0	**7**	0	7	0	**1**	0	1	0	3	**1**	4	0	0	0	0
Total Volume	1	24	2	27	1	1	0	2	2	13	1	16	1	0	0	1
% App. Total	3.7	88.9	7.4		50	50	0		12.5	81.2	6.2		100	0	0	
PHF	.250	.857	.250	.964	.250	.250	.000	.500	.250	.650	.250	.571	.250	.000	.000	.250

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia PM
Site Code : 06718128
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Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	25	95	27	147	72	57	15	144	24	123	73	220	54	81	22	157	668
04:15 PM	28	113	30	171	68	64	15	147	29	118	69	216	47	81	28	156	690
04:30 PM	31	107	20	158	60	52	10	122	18	115	58	191	58	111	34	203	674
04:45 PM	26	106	22	154	62	59	9	130	16	114	56	186	57	88	30	175	645
Total	110	421	99	630	262	232	49	543	87	470	256	813	216	361	114	691	2677
05:00 PM	29	107	22	158	67	61	22	150	16	111	60	187	53	124	21	198	693
05:15 PM	40	115	28	183	71	41	10	122	17	120	60	197	54	117	23	194	696
05:30 PM	23	123	25	171	62	56	15	133	26	123	75	224	44	82	20	146	674
05:45 PM	27	121	21	169	74	54	15	143	22	103	61	186	62	67	16	145	643
Total	119	466	96	681	274	212	62	548	81	457	256	794	213	390	80	683	2706
Grand Total	229	887	195	1311	536	444	111	1091	168	927	512	1607	429	751	194	1374	5383
Apprch %	17.5	67.7	14.9		49.1	40.7	10.2		10.5	57.7	31.9		31.2	54.7	14.1		
Total %	4.3	16.5	3.6	24.4	10	8.2	2.1	20.3	3.1	17.2	9.5	29.9	8	14	3.6	25.5	
Passenger Vehicles	223	834	193	1250	533	442	106	1081	167	888	508	1563	423	750	193	1366	5260
% Passenger Vehicles	97.4	94	99	95.3	99.4	99.5	95.5	99.1	99.4	95.8	99.2	97.3	98.6	99.9	99.5	99.4	97.7
Large 2 Axle Vehicles	6	15	0	21	2	2	5	9	1	9	4	14	5	1	1	7	51
% Large 2 Axle Vehicles	2.6	1.7	0	1.6	0.4	0.5	4.5	0.8	0.6	1	0.8	0.9	1.2	0.1	0.5	0.5	0.9
3 Axle Vehicles	0	11	2	13	1	0	0	1	0	2	0	2	1	0	0	1	17
% 3 Axle Vehicles	0	1.2	1	1	0.2	0	0	0.1	0	0.2	0	0.1	0.2	0	0	0.1	0.3
4+ Axle Trucks	0	27	0	27	0	0	0	0	0	28	0	28	0	0	0	0	55
% 4+ Axle Trucks	0	3	0	2.1	0	0	0	0	0	3	0	1.7	0	0	0	0	1

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	31	107	20	158	60	52	10	122	**18**	115	58	191	**58**	111	**34**	**203**	674
04:45 PM	26	106	22	154	62	59	9	130	16	114	56	186	57	88	30	175	645
05:00 PM	29	107	22	158	67	**61**	**22**	**150**	16	111	**60**	187	53	**124**	21	198	693
05:15 PM	**40**	**115**	**28**	**183**	**71**	41	10	122	17	**120**	60	**197**	54	117	23	194	**696**
Total Volume	126	435	92	653	260	213	51	524	67	460	234	761	222	440	108	770	2708
% App. Total	19.3	66.6	14.1		49.6	40.6	9.7		8.8	60.4	30.7		28.8	57.1	14		
PHF	.788	.946	.821	.892	.915	.873	.580	.873	.931	.958	.975	.966	.957	.887	.794	.948	.973

Counts Unlimited
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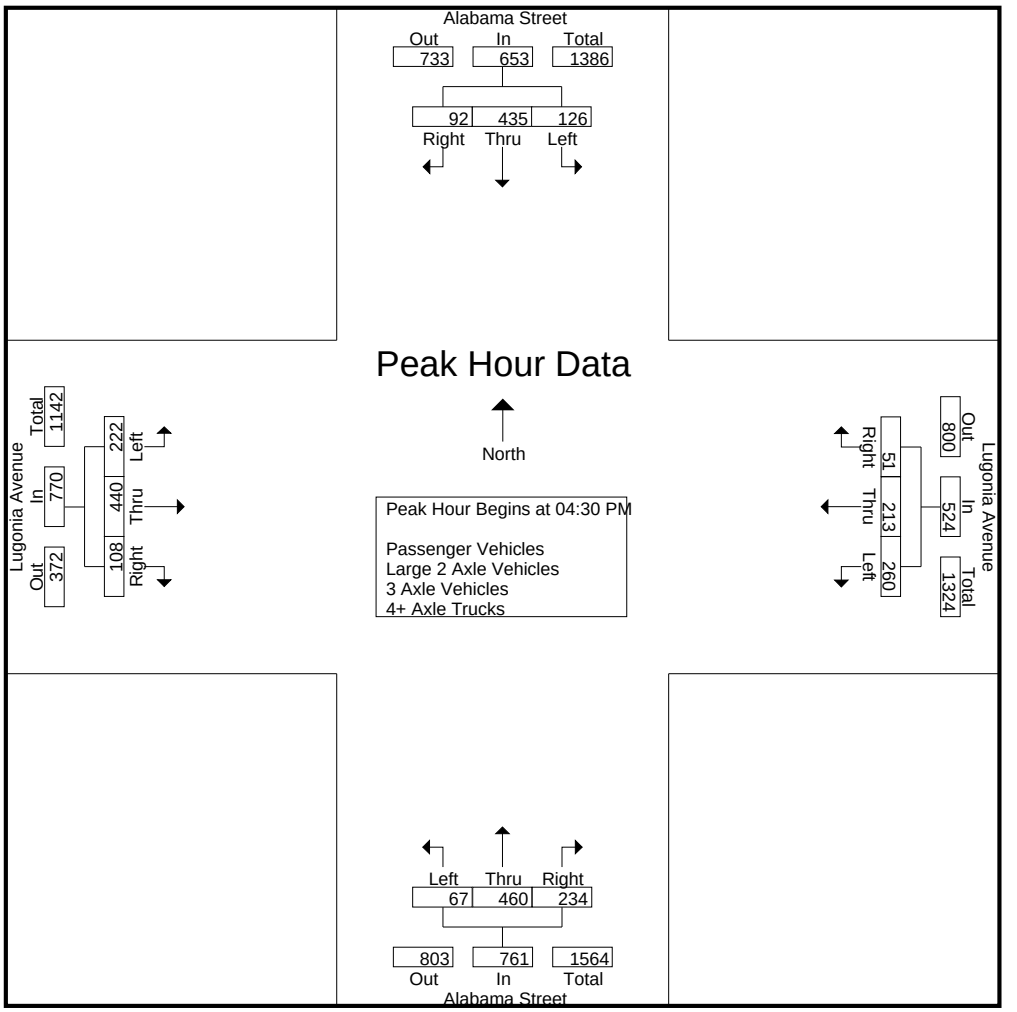
City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia PM
Site Code : 06718128
Start Date : 2/21/2018
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:15 PM				04:00 PM				04:30 PM			
+0 mins.	29	107	22	158	**68**	**64**	15	147	24	**123**	**73**	**220**	**58**	111	**34**	**203**
+15 mins.	**40**	115	**28**	**183**	60	52	10	122	**29**	118	69	216	57	88	30	175
+30 mins.	23	**123**	25	171	62	59	9	130	18	115	58	191	53	**124**	21	198
+45 mins.	27	121	21	169	67	61	**22**	**150**	16	114	56	186	54	117	23	194
Total Volume	119	466	96	681	257	236	56	549	87	470	256	813	222	440	108	770
% App. Total	17.5	68.4	14.1		46.8	43	10.2		10.7	57.8	31.5		28.8	57.1	14	
PHF	.744	.947	.857	.930	.945	.922	.636	.915	.750	.955	.877	.924	.957	.887	.794	.948

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia PM
Site Code : 06718128
Start Date : 2/21/2018
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Groups Printed- Passenger Vehicles

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	25	87	26	138	71	57	15	143	24	117	73	214	51	81	22	154	649
04:15 PM	27	108	30	165	68	63	14	145	28	111	69	208	46	81	28	155	673
04:30 PM	29	102	20	151	60	52	10	122	18	108	58	184	57	110	34	201	658
04:45 PM	26	105	22	153	62	59	8	129	16	112	55	183	56	88	29	173	638
Total	107	402	98	607	261	231	47	539	86	448	255	789	210	360	113	683	2618
05:00 PM	28	97	21	146	67	61	21	149	16	107	58	181	53	124	21	198	674
05:15 PM	39	107	28	174	69	41	10	120	17	116	60	193	54	117	23	194	681
05:30 PM	23	110	25	158	62	56	14	132	26	118	74	218	44	82	20	146	654
05:45 PM	26	118	21	165	74	53	14	141	22	99	61	182	62	67	16	145	633
Total	116	432	95	643	272	211	59	542	81	440	253	774	213	390	80	683	2642
Grand Total	223	834	193	1250	533	442	106	1081	167	888	508	1563	423	750	193	1366	5260
Apprch %	17.8	66.7	15.4		49.3	40.9	9.8		10.7	56.8	32.5		31	54.9	14.1		
Total %	4.2	15.9	3.7	23.8	10.1	8.4	2	20.6	3.2	16.9	9.7	29.7	8	14.3	3.7	26	

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	29	102	20	151	60	52	10	122	**18**	108	58	184	**57**	110	**34**	**201**	658
04:45 PM	26	105	22	153	62	59	8	129	16	112	55	183	56	88	29	173	638
05:00 PM	28	97	21	146	67	**61**	**21**	**149**	16	107	58	181	53	**124**	21	198	674
05:15 PM	**39**	**107**	**28**	**174**	**69**	41	10	120	17	**116**	**60**	**193**	54	117	23	194	**681**
Total Volume	122	411	91	624	258	213	49	520	67	443	231	741	220	439	107	766	2651
% App. Total	19.6	65.9	14.6		49.6	41	9.4		9	59.8	31.2		28.7	57.3	14		
PHF	.782	.960	.813	.897	.935	.873	.583	.872	.931	.955	.963	.960	.965	.885	.787	.953	.973

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia PM
Site Code : 06718128
Start Date : 2/21/2018
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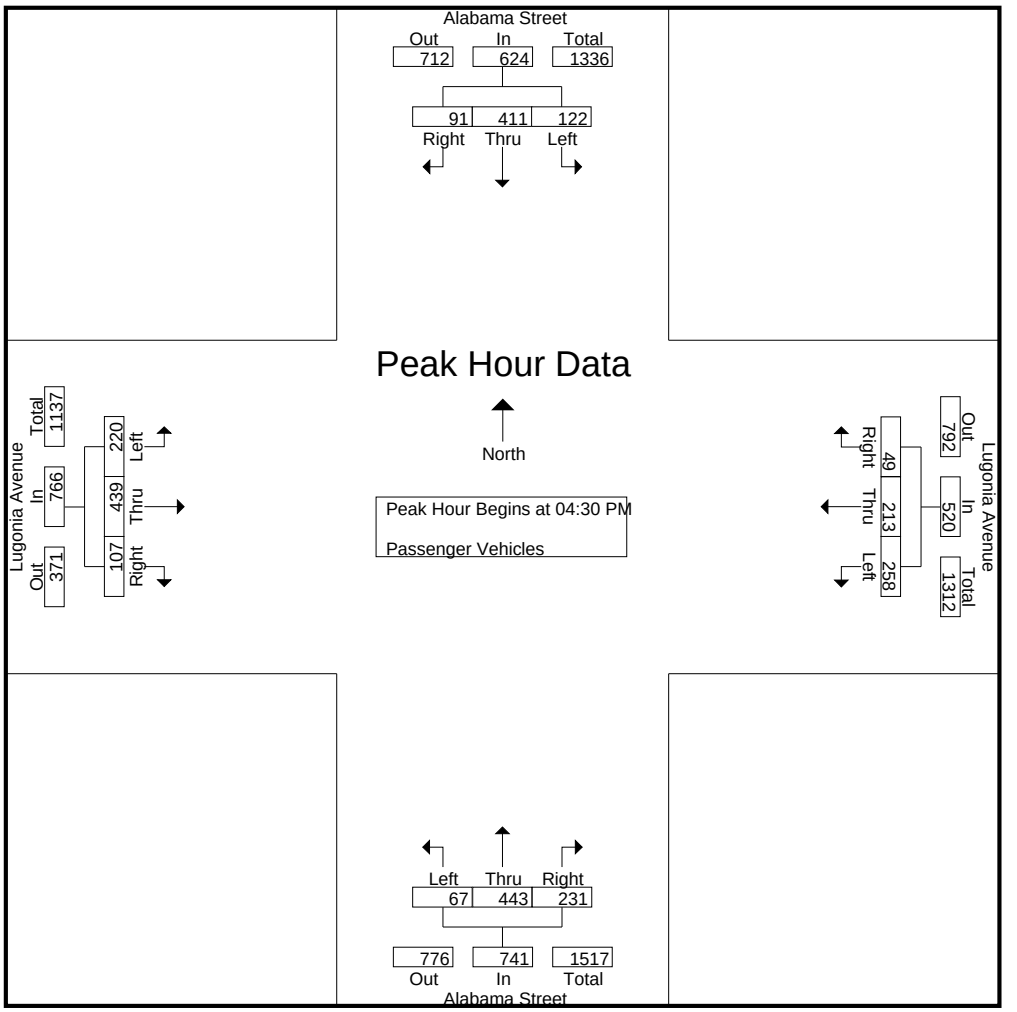

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	29	102	20	151	60	52	10	122	**18**	108	58	184	**57**	110	**34**	**201**
+15 mins.	26	105	22	153	62	59	8	129	16	112	55	183	56	88	29	173
+30 mins.	28	97	21	146	67	**61**	**21**	**149**	16	107	58	181	53	**124**	21	198
+45 mins.	**39**	**107**	**28**	**174**	**69**	41	10	120	17	**116**	**60**	**193**	54	117	23	194
Total Volume	122	411	91	624	258	213	49	520	67	443	231	741	220	439	107	766
% App. Total	19.6	65.9	14.6		49.6	41	9.4		9	59.8	31.2		28.7	57.3	14	
PHF	.782	.960	.813	.897	.935	.873	.583	.872	.931	.955	.963	.960	.965	.885	.787	.953

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City of Redlands
N/S: Alabama Street
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Weather: Clear

File Name : 07_RED_Alabama_Lugonia PM
Site Code : 06718128
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Groups Printed- Large 2 Axle Vehicles

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	2	0	2	0	0	0	0	0	2	0	2	2	0	0	2	6
04:15 PM	1	3	0	4	0	1	1	2	1	0	0	1	1	0	0	1	8
04:30 PM	2	1	0	3	0	0	0	0	0	1	0	1	1	1	0	2	6
04:45 PM	0	0	0	0	0	0	1	1	0	0	1	1	1	0	1	2	4
Total	3	6	0	9	0	1	2	3	1	3	1	5	5	1	1	7	24
05:00 PM	1	3	0	4	0	0	1	1	0	0	2	2	0	0	0	0	7
05:15 PM	1	1	0	2	2	0	0	2	0	2	0	2	0	0	0	0	6
05:30 PM	0	4	0	4	0	0	1	1	0	3	1	4	0	0	0	0	9
05:45 PM	1	1	0	2	0	1	1	2	0	1	0	1	0	0	0	0	5
Total	3	9	0	12	2	1	3	6	0	6	3	9	0	0	0	0	27
Grand Total	6	15	0	21	2	2	5	9	1	9	4	14	5	1	1	7	51
Apprch %	28.6	71.4	0		22.2	22.2	55.6		7.1	64.3	28.6		71.4	14.3	14.3		
Total %	11.8	29.4	0	41.2	3.9	3.9	9.8	17.6	2	17.6	7.8	27.5	9.8	2	2	13.7	

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**2**	1	0	3	0	0	0	0	0	1	0	1	**1**	**1**	0	**2**	6
04:45 PM	0	0	0	0	0	0	**1**	1	0	0	1	1	1	0	**1**	2	4
05:00 PM	1	**3**	0	**4**	0	0	1	1	0	0	**2**	**2**	0	0	0	0	**7**
05:15 PM	1	1	0	2	**2**	0	0	**2**	0	**2**	0	2	0	0	0	0	6
Total Volume	4	5	0	9	2	0	2	4	0	3	3	6	2	1	1	4	23
% App. Total	44.4	55.6	0		50	0	50		0	50	50		50	25	25		
PHF	.500	.417	.000	.563	.250	.000	.500	.500	.000	.375	.375	.750	.500	.250	.250	.500	.821

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City of Redlands
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File Name : 07_RED_Alabama_Lugonia PM
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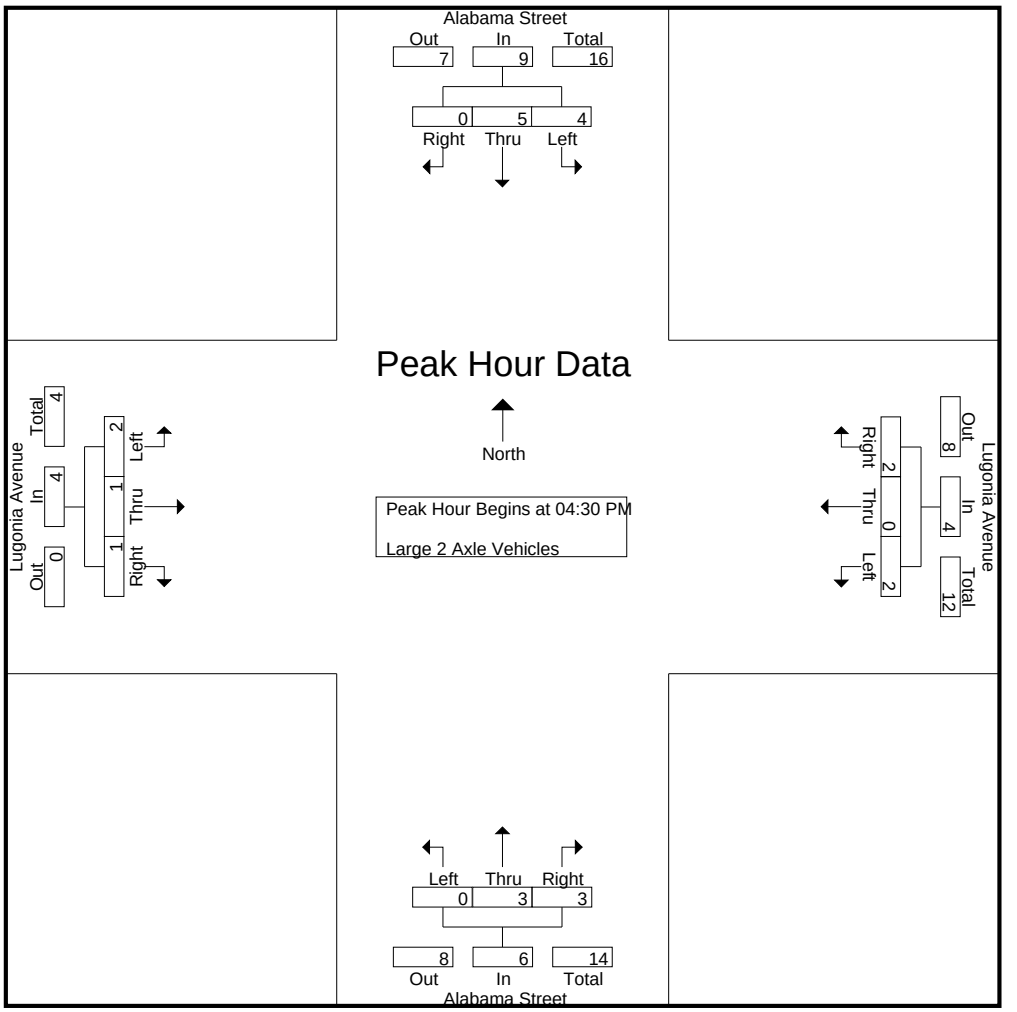

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	**2**	1	0	3	0	0	0	0	0	1	0	1	**1**	**1**	0	**2**
+15 mins.	0	0	0	0	0	0	**1**	1	0	0	1	1	1	0	**1**	2
+30 mins.	1	**3**	0	**4**	0	0	1	1	0	0	**2**	**2**	0	0	0	0
+45 mins.	1	1	0	2	**2**	0	0	**2**	0	**2**	0	2	0	0	0	0
Total Volume	4	5	0	9	2	0	2	4	0	3	3	6	2	1	1	4
% App. Total	44.4	55.6	0		50	0	50		0	50	50		50	25	25	
PHF	.500	.417	.000	.563	.250	.000	.500	.500	.000	.375	.375	.750	.500	.250	.250	.500

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City of Redlands
N/S: Alabama Street
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Weather: Clear

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Groups Printed- 3 Axle Vehicles

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	1	1	2	1	0	0	1	0	0	0	0	1	0	0	1	4
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	1	3	1	0	0	1	0	0	0	0	1	0	0	1	5
05:00 PM	0	2	1	3	0	0	0	0	0	1	0	1	0	0	0	0	4
05:15 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
05:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	9	1	10	0	0	0	0	0	2	0	2	0	0	0	0	12
Grand Total	0	11	2	13	1	0	0	1	0	2	0	2	1	0	0	1	17
Apprch %	0	84.6	15.4		100	0	0		0	100	0		100	0	0		
Total %	0	64.7	11.8	76.5	5.9	0	0	5.9	0	11.8	0	11.8	5.9	0	0	5.9	

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	2	**1**	**3**	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**4**
05:15 PM	0	**3**	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	0	6	1	7	0	0	0	0	0	1	0	1	0	0	0	0	8
% App. Total	0	85.7	14.3		0	0	0		0	100	0		0	0	0		
PHF	.000	.500	.250	.583	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.500

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City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
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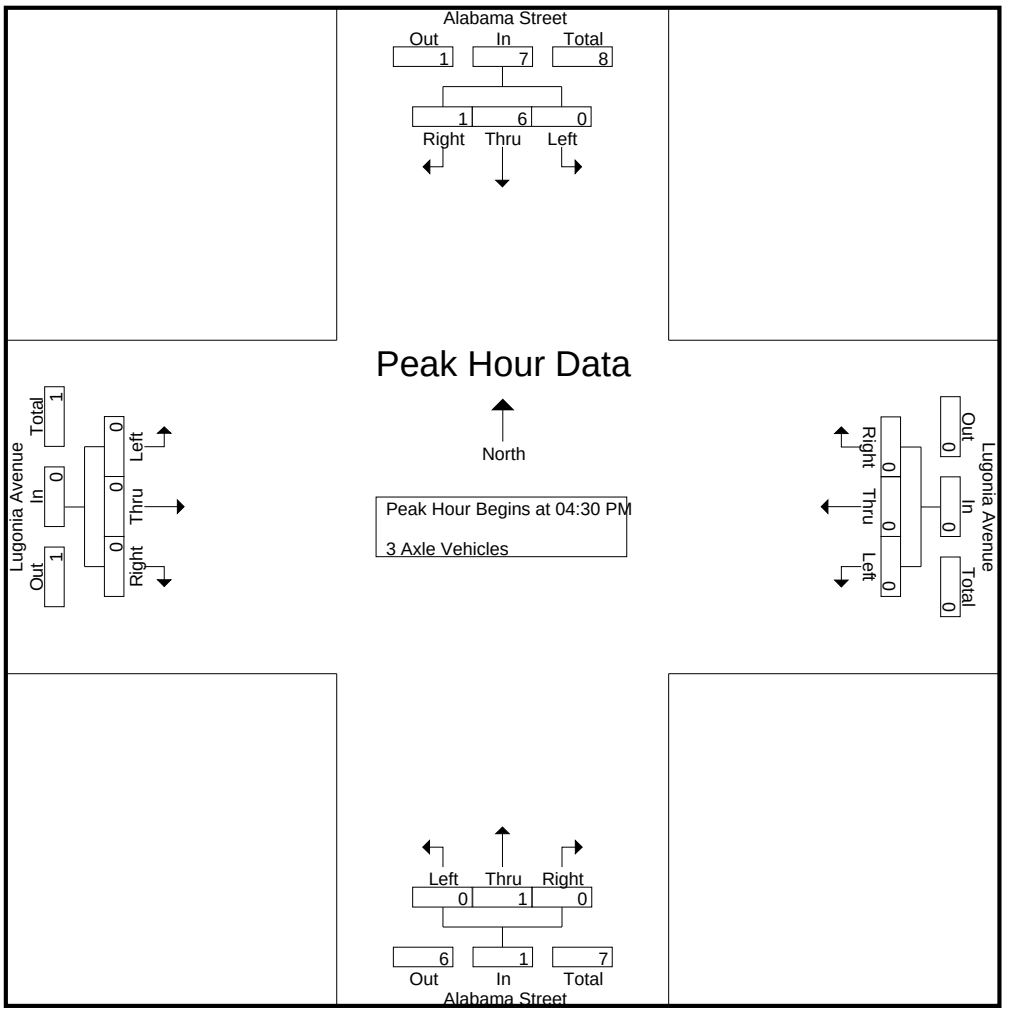

Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	2	**1**	**3**	0	0	0	0	0	**1**	0	**1**	0	0	0	0
+45 mins.	0	**3**	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	6	1	7	0	0	0	0	0	1	0	1	0	0	0	0
% App. Total	0	85.7	14.3		0	0	0		0	100	0		0	0	0	
PHF	.000	.500	.250	.583	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000

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City of Redlands
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Weather: Clear

File Name : 07_RED_Alabama_Lugonia PM
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Groups Printed- 4+ Axle Trucks

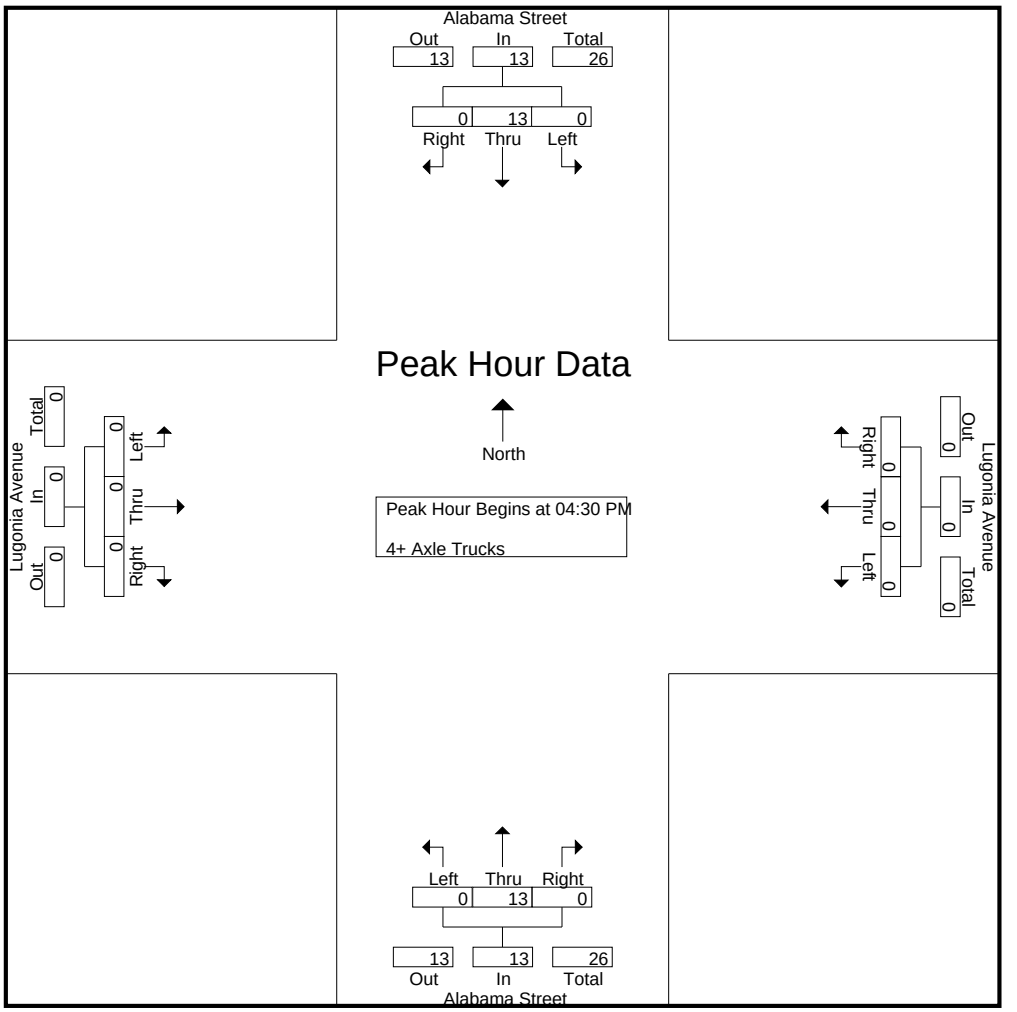
	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	5	0	5	0	0	0	0	0	4	0	4	0	0	0	0	9
04:15 PM	0	2	0	2	0	0	0	0	0	7	0	7	0	0	0	0	9
04:30 PM	0	3	0	3	0	0	0	0	0	6	0	6	0	0	0	0	9
04:45 PM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
Total	0	11	0	11	0	0	0	0	0	19	0	19	0	0	0	0	30
05:00 PM	0	5	0	5	0	0	0	0	0	3	0	3	0	0	0	0	8
05:15 PM	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0	6
05:30 PM	0	7	0	7	0	0	0	0	0	1	0	1	0	0	0	0	8
05:45 PM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
Total	0	16	0	16	0	0	0	0	0	9	0	9	0	0	0	0	25
Grand Total	0	27	0	27	0	0	0	0	0	28	0	28	0	0	0	0	55
Apprch %	0	100	0		0	0	0		0	100	0		0	0	0		
Total %	0	49.1	0	49.1	0	0	0	0	0	50.9	0	50.9	0	0	0	0	

	Alabama Street Southbound				Lugonia Avenue Westbound				Alabama Street Northbound				Lugonia Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	3	0	3	0	0	0	0	0	**6**	0	**6**	0	0	0	0	**9**
04:45 PM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
05:00 PM	0	**5**	0	**5**	0	0	0	0	0	3	0	3	0	0	0	0	8
05:15 PM	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0	6
Total Volume	0	13	0	13	0	0	0	0	0	13	0	13	0	0	0	0	26
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.650	.000	.650	.000	.000	.000	.000	.000	.542	.000	.542	.000	.000	.000	.000	.722

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of Redlands
N/S: Alabama Street
E/W: Lugonia Avenue
Weather: Clear

File Name : 07_RED_Alabama_Lugonia PM
Site Code : 06718128
Start Date : 2/21/2018
Page No : 2



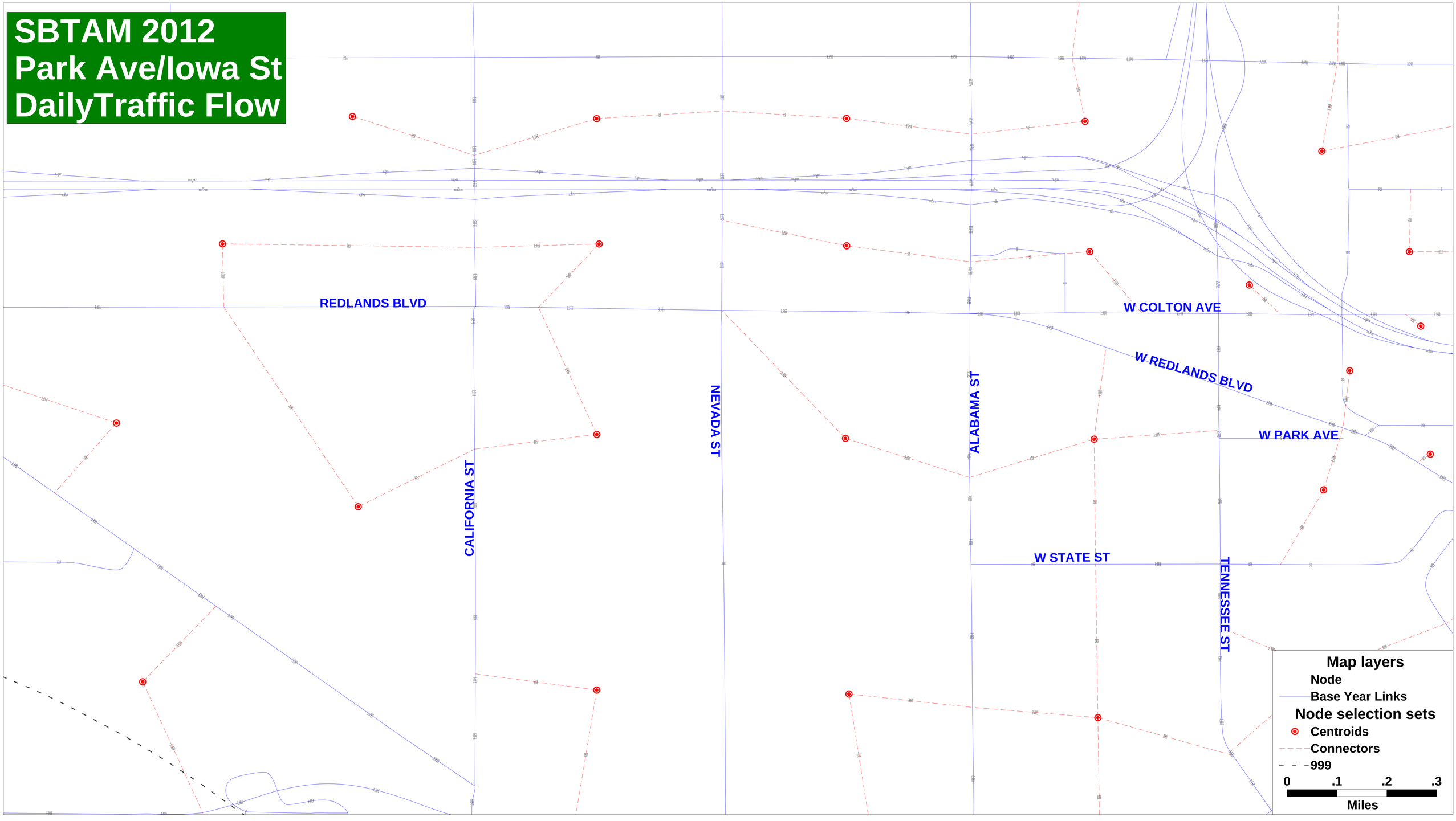
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	3	0	3	0	0	0	0	0	**6**	0	**6**	0	0	0	0
+15 mins.	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0
+30 mins.	0	**5**	0	**5**	0	0	0	0	0	3	0	3	0	0	0	0
+45 mins.	0	4	0	4	0	0	0	0	0	2	0	2	0	0	0	0
Total Volume	0	13	0	13	0	0	0	0	0	13	0	13	0	0	0	0
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0	
PHF	.000	.650	.000	.650	.000	.000	.000	.000	.000	.542	.000	.542	.000	.000	.000	.000

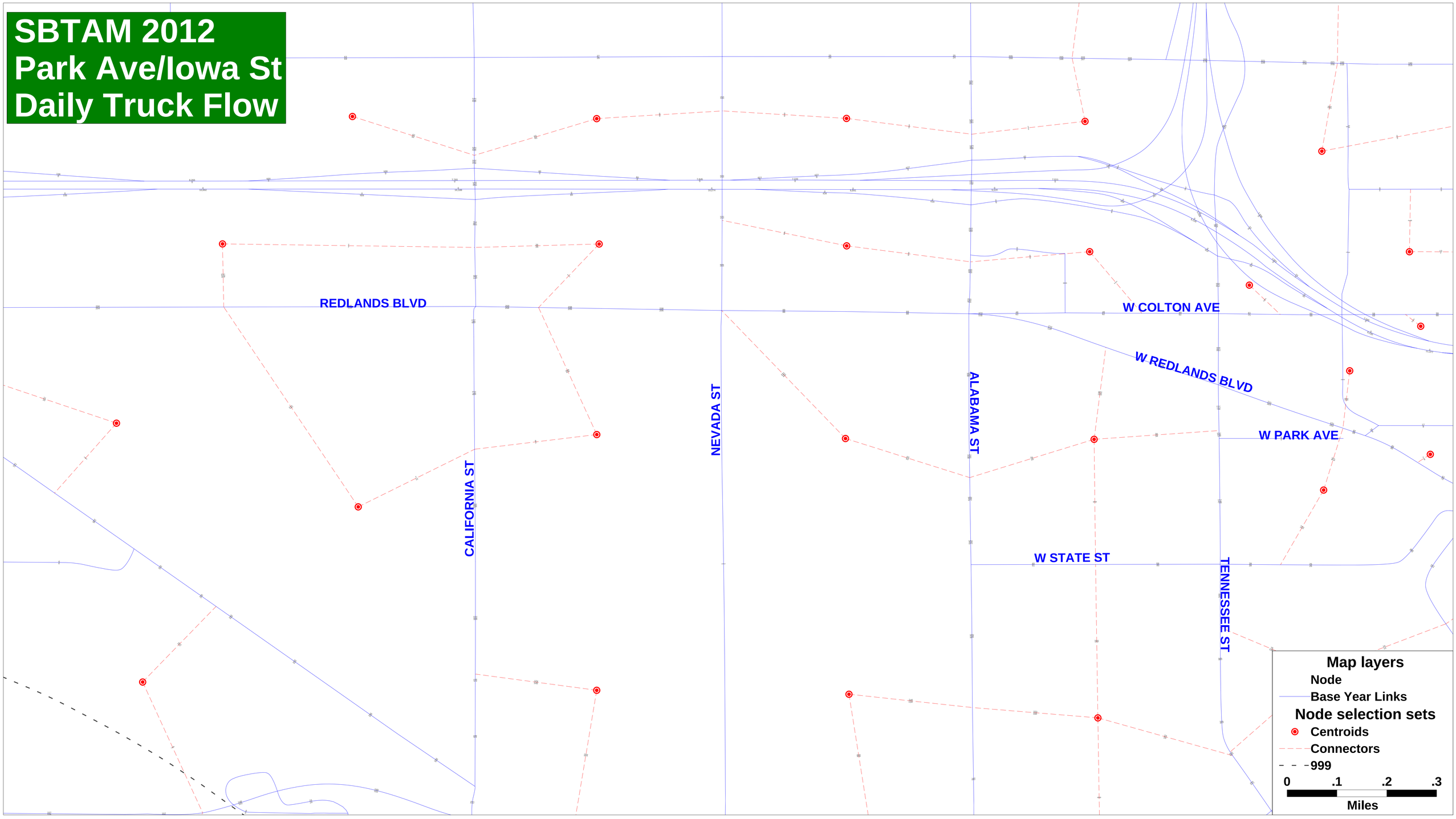
APPENDIX D

TRAVEL DEMAND MODEL PLOTS

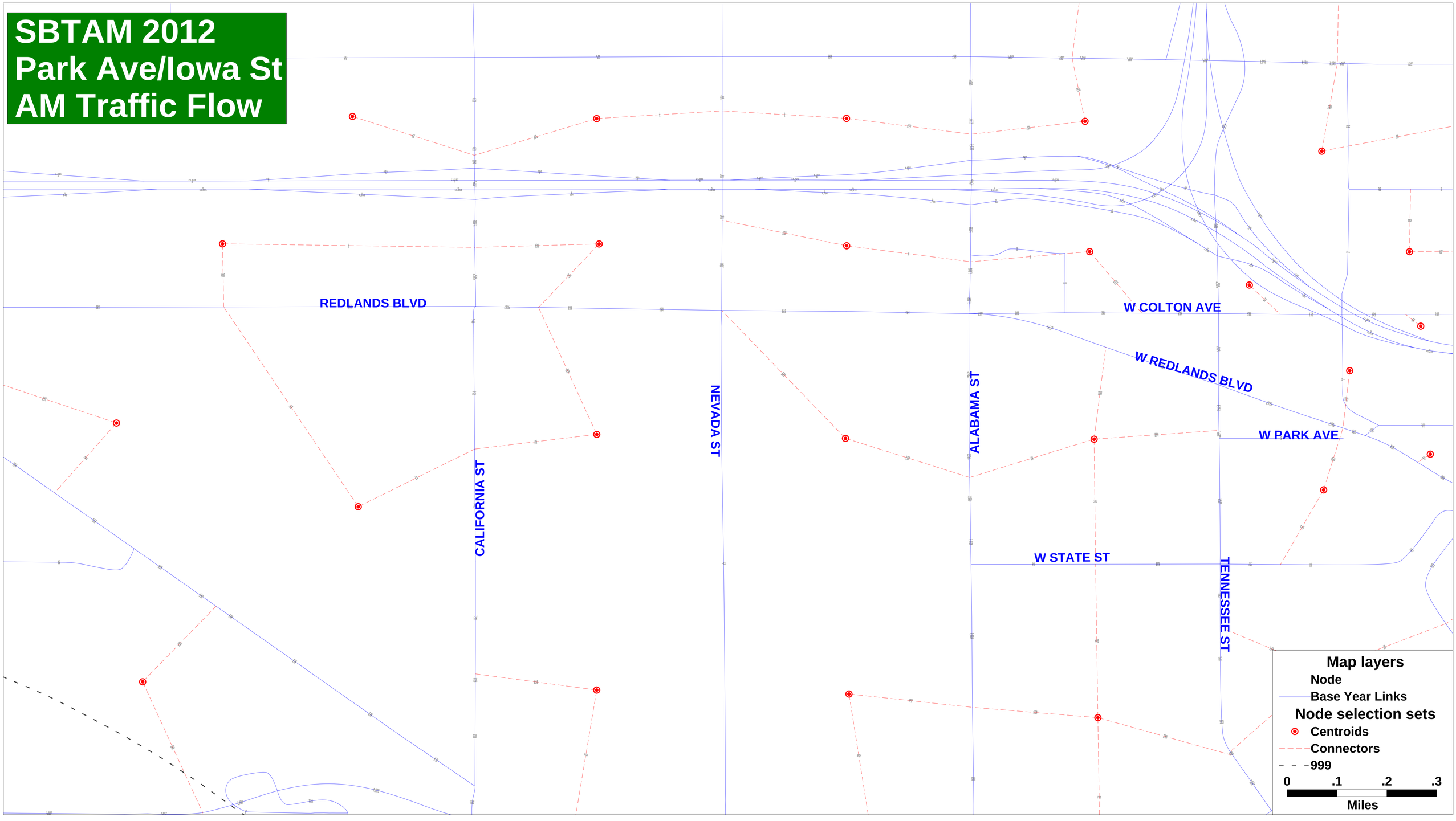
SBTAM 2012
Park Ave/Iowa St
DailyTraffic Flow



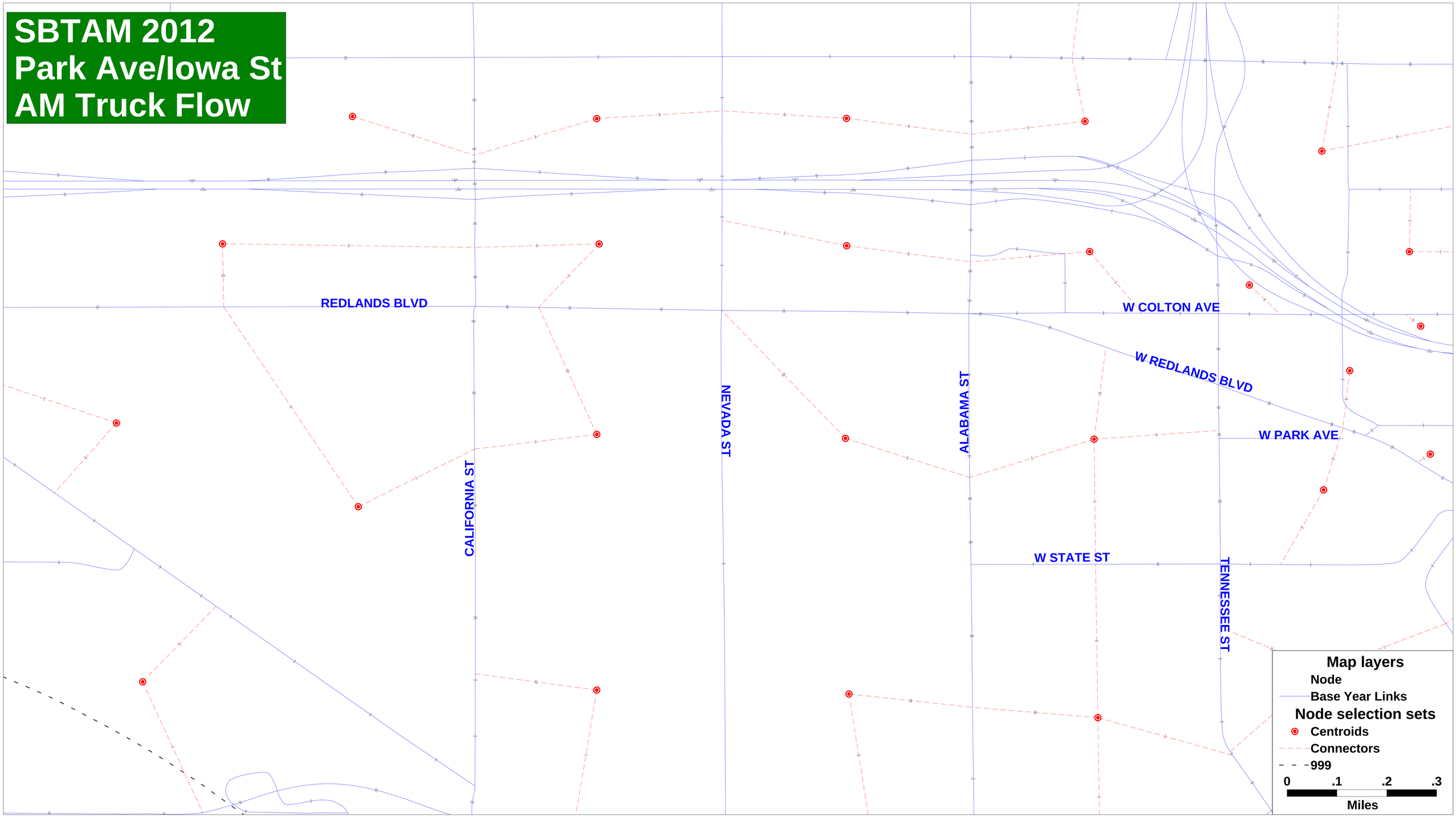
SBTAM 2012
Park Ave/Iowa St
Daily Truck Flow



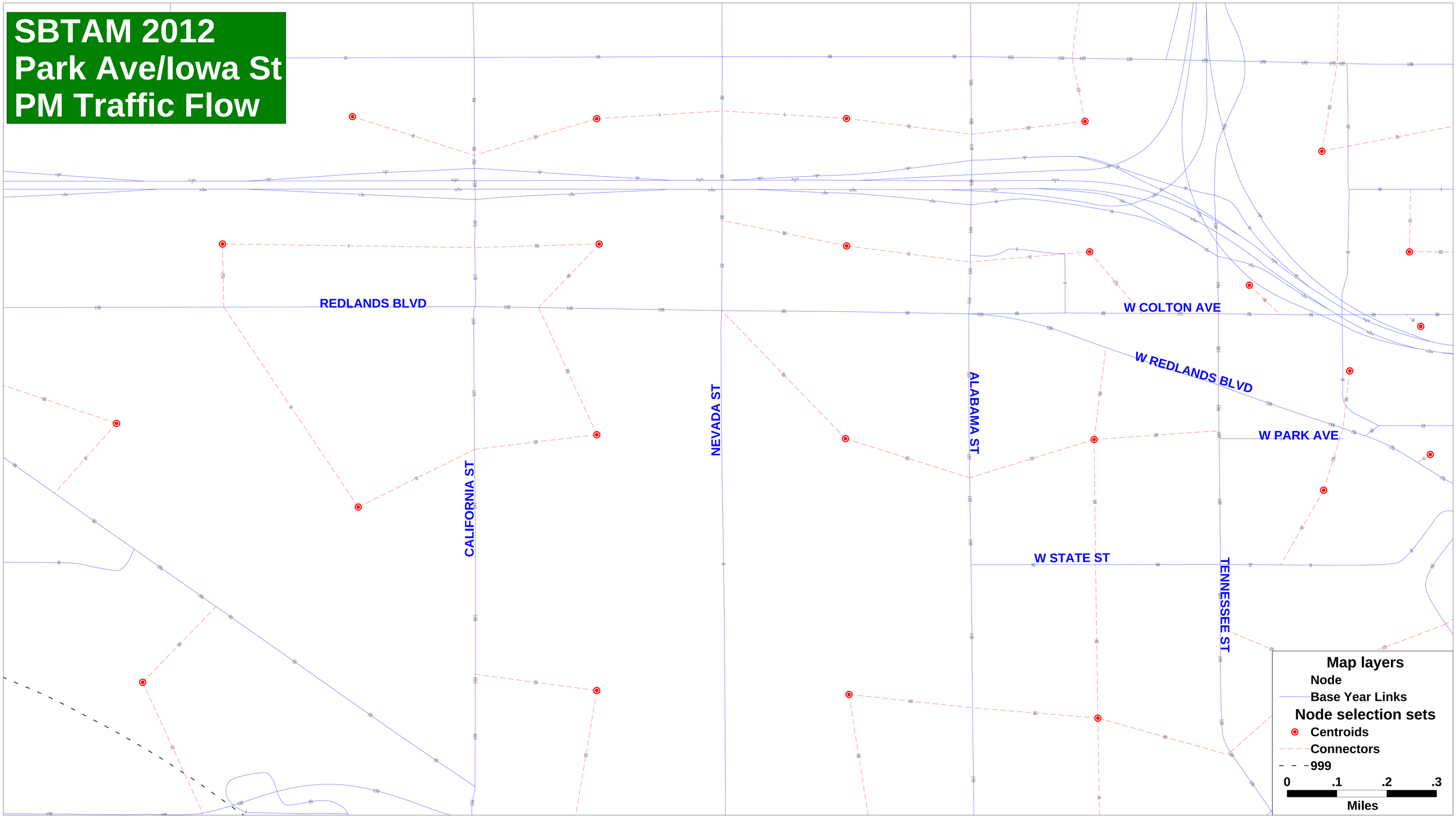
SBTAM 2012
Park Ave/Iowa St
AM Traffic Flow



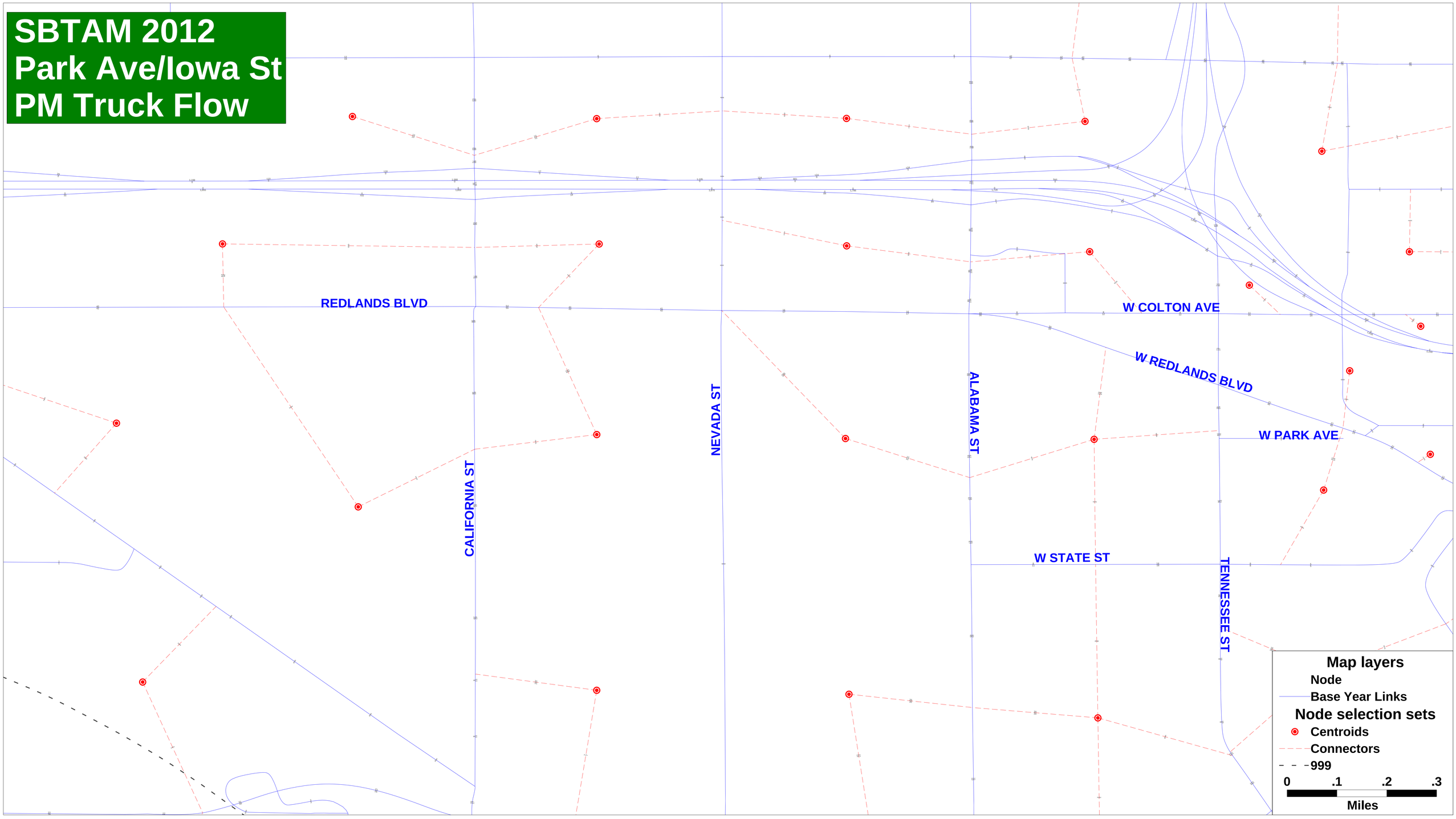
SBTAM 2012
Park Ave/Iowa St
AM Truck Flow



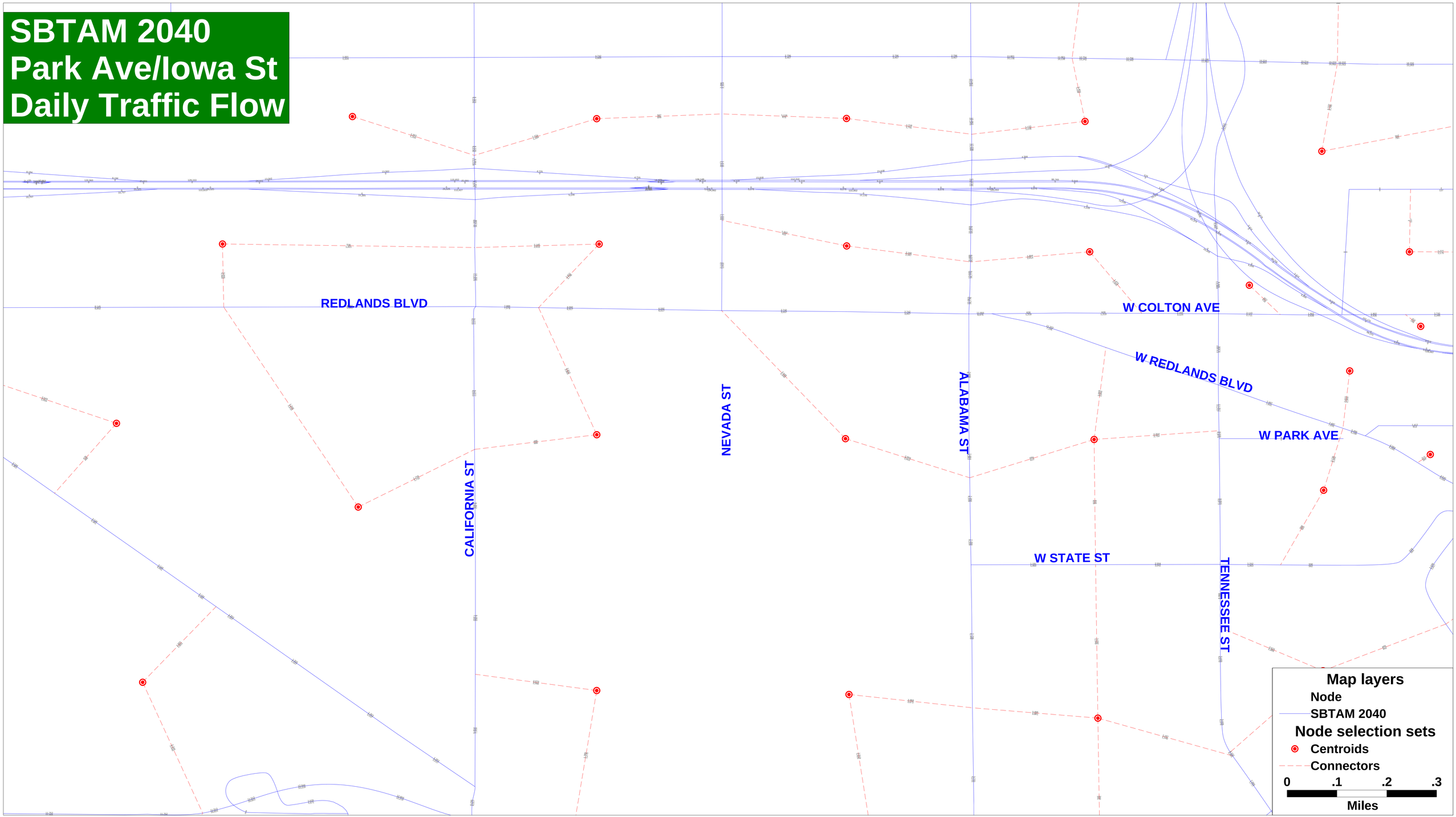
SBTAM 2012
Park Ave/Iowa St
PM Traffic Flow



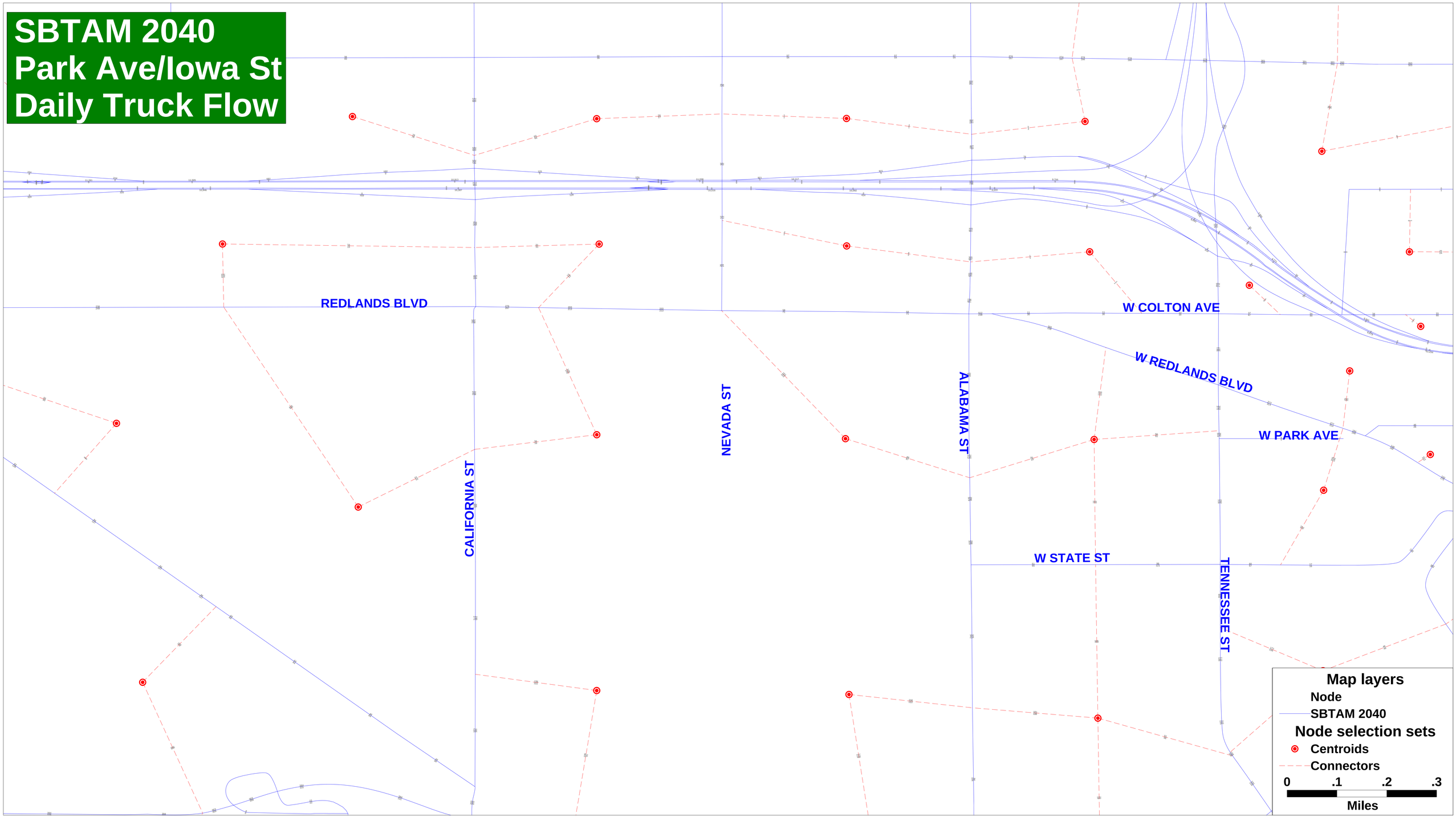
SBTAM 2012
Park Ave/Iowa St
PM Truck Flow



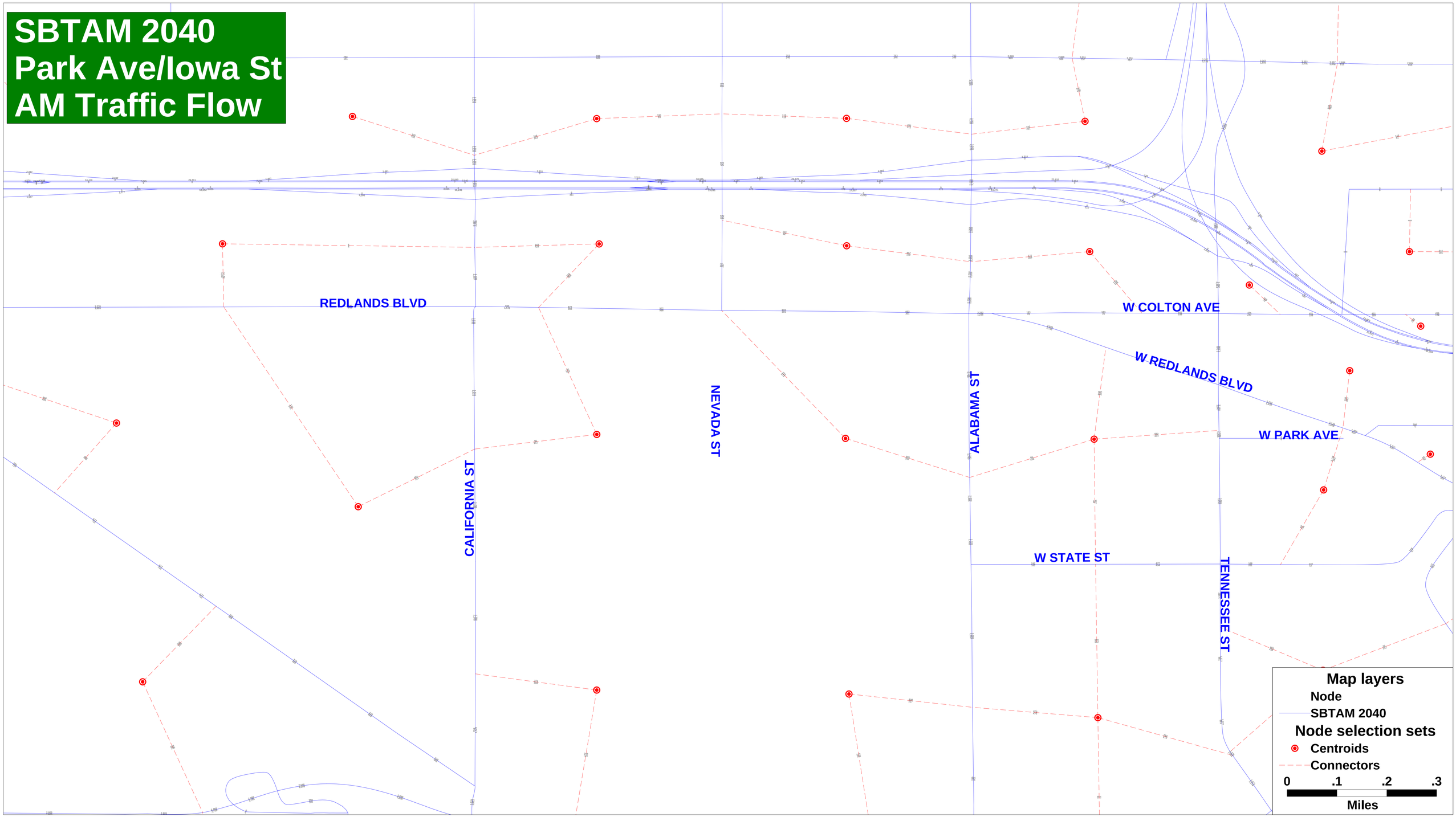
SBTAM 2040
Park Ave/Iowa St
Daily Traffic Flow



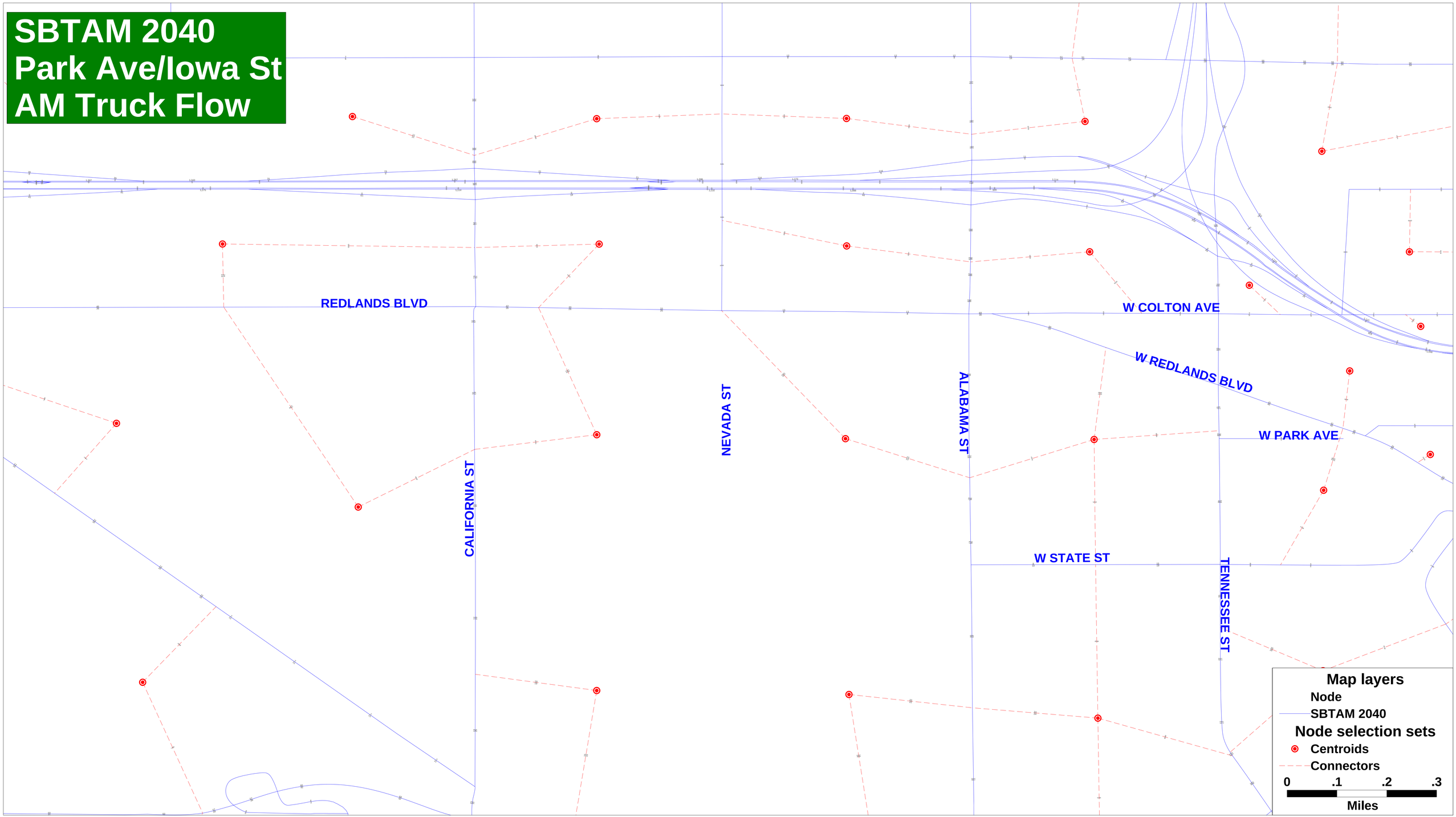
SBTAM 2040
Park Ave/Iowa St
Daily Truck Flow



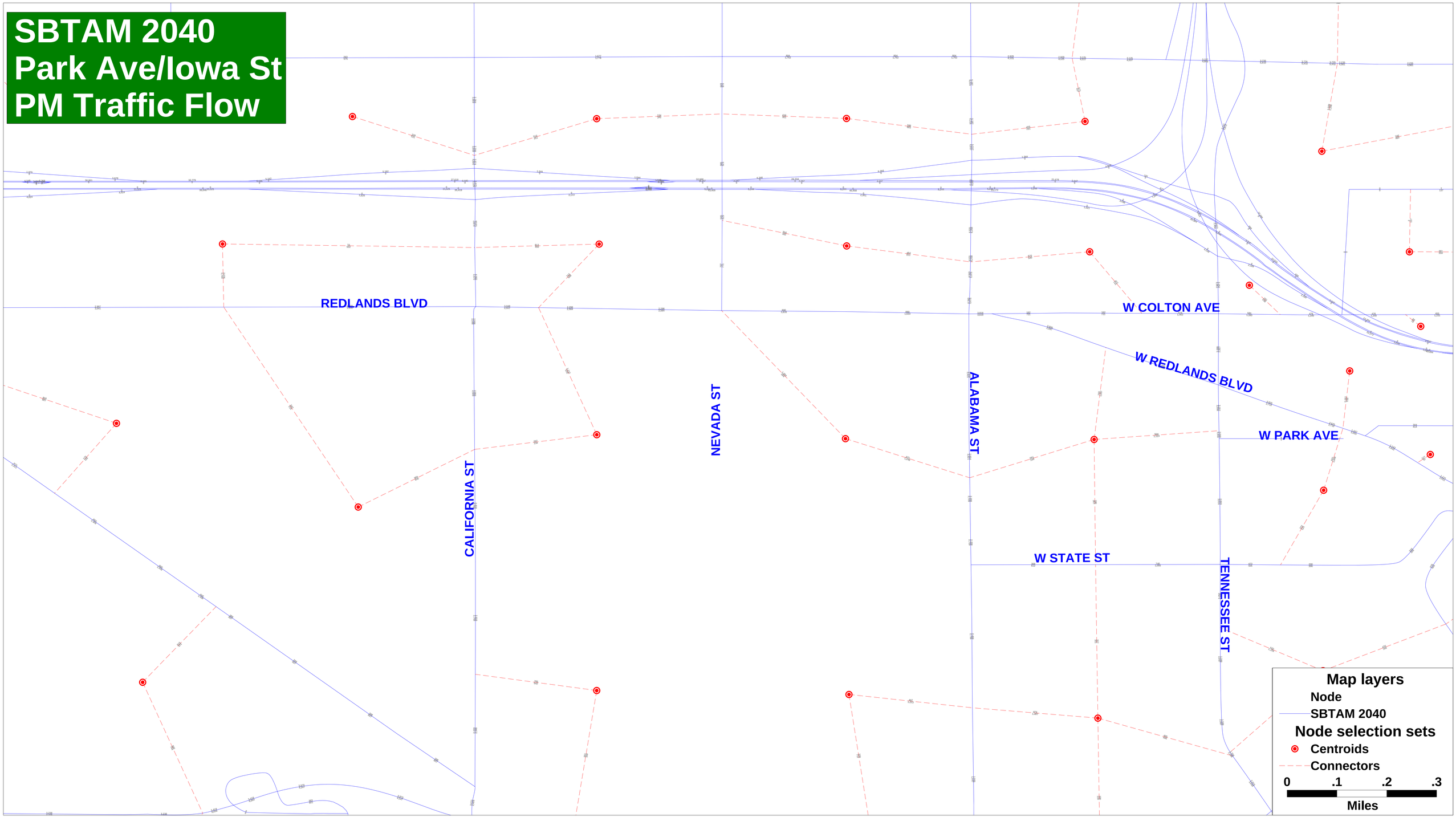
SBTAM 2040
Park Ave/Iowa St
AM Traffic Flow



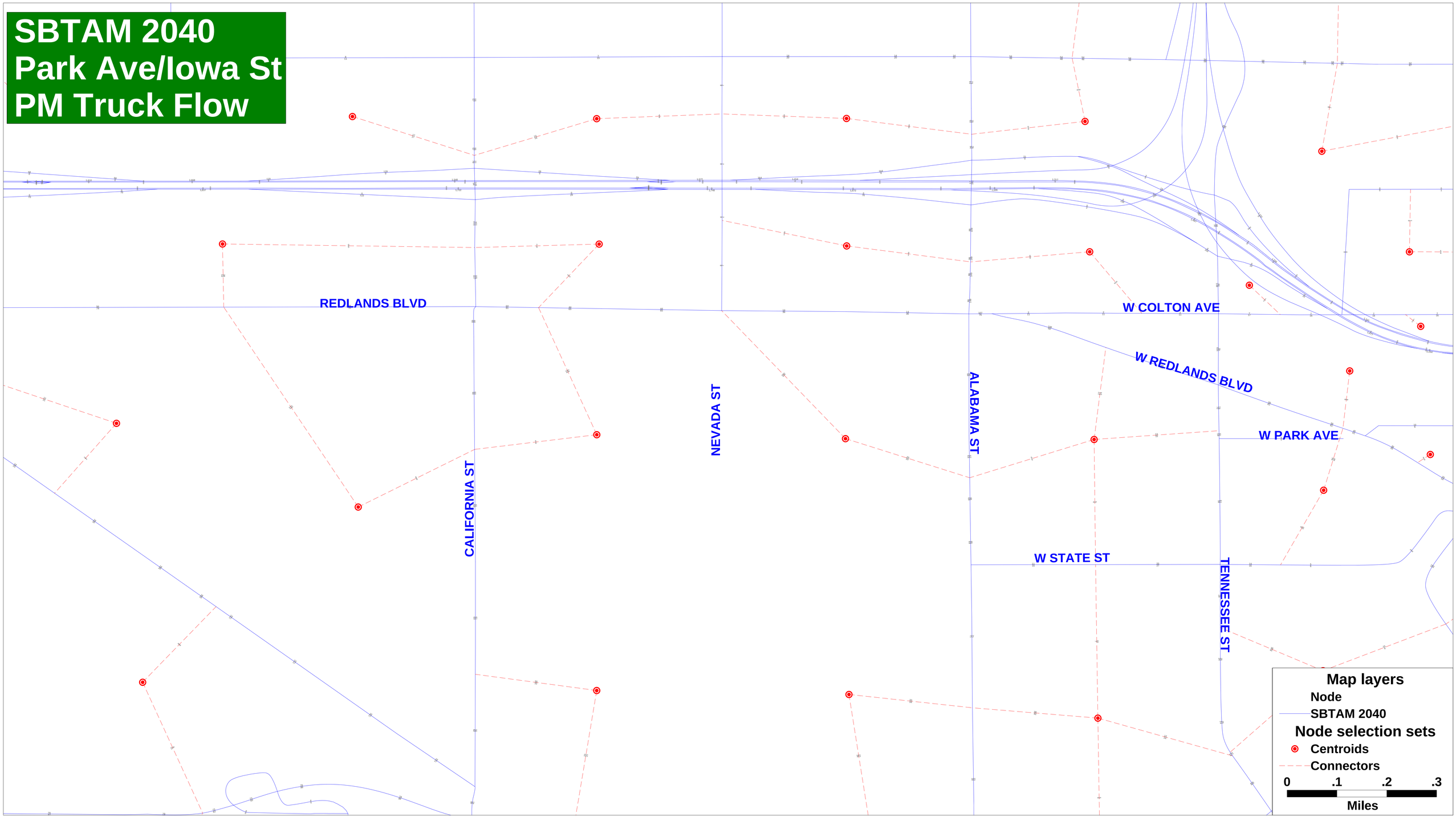
SBTAM 2040
Park Ave/Iowa St
AM Truck Flow



SBTAM 2040
Park Ave/Iowa St
PM Traffic Flow



SBTAM 2040
Park Ave/Iowa St
PM Truck Flow



APPENDIX E

POST-PROCESSING WORKSHEETS

AVERAGE DAILY TRAFFIC

ID	INTERSECTION	LEG	MODEL 2012 ADT	EXISTING 2018 ADT	MODEL 2040 ADT	FUTURE 2040 ADT[1]	OPENING 2020 ADT	OPENING 2022 ADT	ADJUSTED BUILDOUT ADT[2]
1	California Street at:	North	3,673	10,400	9,059	14,600	10,800	11,200	16,200
	Lugonia Avenue	South	5,567	16,400	18,175	18,200	17,300	18,200	26,460
		East	1,492	6,700	9,697	10,700	7,300	7,900	10,700
		West	1,078	6,300	2,303	7,300	6,400	6,500	9,180
2	California Street at:	North	7,444	18,400	21,859	21,900	19,400	20,500	28,944
	I-10 Freeway WB Ramps	South	12,651	19,100	27,729	27,700	20,200	21,300	30,780
		East	2,474	8,400	4,850	10,300	8,600	8,700	11,340
		West	6,781	9,400	14,094	14,100	9,900	10,400	14,100
3	California Street at:	North	12,651	22,100	27,729	27,700	23,200	24,300	34,020
	I-10 Freeway EB Ramps	South	18,127	24,400	31,812	31,800	25,400	26,400	37,368
		East	2,899	8,000	5,237	9,800	8,200	8,300	10,908
		West	6,377	8,100	10,954	11,000	8,400	8,800	11,988
4	Project West Access at:	North	-	-	-	-	-	-	-
	Lugonia Avenue	South	-	-	-	-	-	-	-
		East	1,492	5,900	9,697	10,700	6,500	7,100	10,700
		West	1,492	5,900	9,697	10,700	6,500	7,100	10,700
5	Project West Access at:	North	-	-	-	-	-	-	
	Lugonia Avenue	South	-	-	-	-	-	-	-
		East	1,492	7,100	9,697	10,700	7,700	8,300	10,700
		West	1,492	7,100	9,697	10,700	7,700	8,300	10,700
6	Nevada Street at:	North	927	6,700	7,525	8,300	7,200	7,600	8,300
	Project North Access	South	927	6,700	7,525	8,300	7,200	7,600	10,584
		East	-	-	-	-	-	-	1,188
		West	-	-	-	-	-	-	1,512
7	Nevada Street at:	North	927	6,700	7,525	8,300	7,200	7,600	11,124
	Lugonia Avenue	South	2,439	10,300	4,462	11,900	10,400	10,600	11,900
		East	2,762	10,100	6,364	12,900	10,400	10,600	12,900
		West	1,492	7,100	9,697	10,700	7,700	8,300	10,700
9			-		-	-	-	-	-
			-		-	-	-	-	-
			-		-	-	-	-	-
			-		-	-	-	-	-
10			-		-	-	-	-	-
			-		-	-	-	-	-
			-		-	-	-	-	-
			-		-	-	-	-	-

1. 10% minimum growth over existing for year 2040.
2. Minimum factored growth over Opening Year with Other Development for year 2040.

California Street (NS) / Lugonia Avenue (EW) - #1

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2020 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL
NORTH	LEFT	**235**	SOUTH LEG		NORTH	LEFT	**103**	SOUTH LEG	
BOUND	THRU	**490**	IN ...	**840**	BOUND	THRU	**250**	IN ...	**550**
	RIGHT	**85**	OUT ...	**420**		RIGHT	**169**	OUT ...	**960**
SOUTH	LEFT	**41**	NORTH LEG		SOUTH	LEFT	**63**	NORTH LEG	
BOUND	THRU	**247**	IN ...	**310**	BOUND	THRU	**519**	IN ...	**630**
	RIGHT	**11**	OUT ...	**560**		RIGHT	**19**	OUT ...	**320**
EAST	LEFT	**5**	WEST LEG		EAST	LEFT	**9**	WEST LEG	
BOUND	THRU	**15**	IN ...	**110**	BOUND	THRU	**109**	IN ...	**380**
	RIGHT	**87**	OUT ...	**310**		RIGHT	**247**	OUT ...	**180**
WEST	LEFT	**62**	EAST LEG		WEST	LEFT	**136**	EAST LEG	
BOUND	THRU	**63**	IN ...	**190**	BOUND	THRU	**62**	IN ...	**270**
	RIGHT	**42**	OUT ...	**160**		RIGHT	**46**	OUT ...	**370**

YEAR 2020 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**235**	**242**	NORTH LEG	NORTH	LEFT	**103**	**106**	NORTH LEG
BOUND	THRU	**490**	**508**	RATIO **7.8%**	BOUND	THRU	**250**	**261**	RATIO **8.5%**
	RIGHT	**85**	**99**	ADT 11,200		RIGHT	**169**	**189**	ADT 11,200
SOUTH	LEFT	**41**	**45**	SOUTH LEG	SOUTH	LEFT	**63**	**67**	SOUTH LEG
BOUND	THRU	**247**	**256**	RATIO **7.0%**	BOUND	THRU	**519**	**546**	RATIO **8.3%**
	RIGHT	**11**	**11**	ADT 18,200		RIGHT	**19**	**20**	ADT 18,200
EAST	LEFT	**5**	**5**	EAST LEG	EAST	LEFT	**9**	**9**	EAST LEG
BOUND	THRU	**15**	**16**	RATIO **4.4%**	BOUND	THRU	**109**	**114**	RATIO **8.1%**
	RIGHT	**87**	**90**	ADT 7,900		RIGHT	**247**	**257**	ADT 7,900
WEST	LEFT	**62**	**75**	WEST LEG	WEST	LEFT	**136**	**157**	WEST LEG
BOUND	THRU	**63**	**68**	RATIO **6.6%**	BOUND	THRU	**62**	**64**	RATIO **8.8%**
	RIGHT	**42**	**47**	ADT 6,500		RIGHT	**46**	**50**	ADT 6,500

California Street (NS) / Lugonia Avenue (EW) - #1

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL
NORTH	LEFT	**235**	SOUTH LEG		NORTH	LEFT	**103**	SOUTH LEG	
BOUND	THRU	**490**	IN ...	**880**	BOUND	THRU	**250**	IN ...	**580**
	RIGHT	**85**	OUT ...	**440**		RIGHT	**169**	OUT ...	**1,010**
SOUTH	LEFT	**41**	NORTH LEG		SOUTH	LEFT	**63**	NORTH LEG	
BOUND	THRU	**247**	IN ...	**310**	BOUND	THRU	**519**	IN ...	**660**
	RIGHT	**11**	OUT ...	**580**		RIGHT	**19**	OUT ...	**330**
EAST	LEFT	**5**	WEST LEG		EAST	LEFT	**9**	WEST LEG	
BOUND	THRU	**15**	IN ...	**120**	BOUND	THRU	**109**	IN ...	**380**
	RIGHT	**87**	OUT ...	**320**		RIGHT	**247**	OUT ...	**190**
WEST	LEFT	**62**	EAST LEG		WEST	LEFT	**136**	EAST LEG	
BOUND	THRU	**63**	IN ...	**200**	BOUND	THRU	**62**	IN ...	**300**
	RIGHT	**42**	OUT ...	**170**		RIGHT	**46**	OUT ...	**400**

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**235**	**242**	NORTH LEG	NORTH	LEFT	**103**	**106**	NORTH LEG
BOUND	THRU	**490**	**527**	RATIO **8.0%**	BOUND	THRU	**250**	**268**	RATIO **8.9%**
	RIGHT	**85**	**109**	ADT 11,200		RIGHT	**169**	**211**	ADT 11,200
SOUTH	LEFT	**41**	**43**	SOUTH LEG	SOUTH	LEFT	**63**	**72**	SOUTH LEG
BOUND	THRU	**247**	**258**	RATIO **7.2%**	BOUND	THRU	**519**	**574**	RATIO **8.8%**
	RIGHT	**11**	**11**	ADT 18,200		RIGHT	**19**	**20**	ADT 18,200
EAST	LEFT	**5**	**5**	EAST LEG	EAST	LEFT	**9**	**9**	EAST LEG
BOUND	THRU	**15**	**17**	RATIO **4.7%**	BOUND	THRU	**109**	**117**	RATIO **8.9%**
	RIGHT	**87**	**98**	ADT 7,900		RIGHT	**247**	**257**	ADT 7,900
WEST	LEFT	**62**	**83**	WEST LEG	WEST	LEFT	**136**	**179**	WEST LEG
BOUND	THRU	**63**	**69**	RATIO **6.8%**	BOUND	THRU	**62**	**68**	RATIO **8.9%**
	RIGHT	**42**	**48**	ADT 6,500		RIGHT	**46**	**54**	ADT 6,500

California Street (NS) / Lugonia Avenue (EW) - #1

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL
NORTH	LEFT	**235**	SOUTH LEG		NORTH	LEFT	**103**	SOUTH LEG	
BOUND	THRU	**490**	IN ...	**1,170**	BOUND	THRU	**250**	IN ...	**870**
	RIGHT	**85**	OUT ...	**600**		RIGHT	**169**	OUT ...	**1,490**
SOUTH	LEFT	**41**	NORTH LEG		SOUTH	LEFT	**63**	NORTH LEG	
BOUND	THRU	**247**	IN ...	**360**	BOUND	THRU	**519**	IN ...	**940**
	RIGHT	**11**	OUT ...	**750**		RIGHT	**19**	OUT ...	**440**
EAST	LEFT	**5**	WEST LEG		EAST	LEFT	**9**	WEST LEG	
BOUND	THRU	**15**	IN ...	**140**	BOUND	THRU	**109**	IN ...	**430**
	RIGHT	**87**	OUT ...	**350**		RIGHT	**247**	OUT ...	**220**
WEST	LEFT	**62**	EAST LEG		WEST	LEFT	**136**	EAST LEG	
BOUND	THRU	**63**	IN ...	**340**	BOUND	THRU	**62**	IN ...	**550**
	RIGHT	**42**	OUT ...	**310**		RIGHT	**46**	OUT ...	**650**

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**235**	**259**	NORTH LEG	NORTH	LEFT	**103**	**116**	NORTH LEG
BOUND	THRU	**490**	**675**	RATIO **7.7%**	BOUND	THRU	**250**	**351**	RATIO **9.5%**
	RIGHT	**85**	**231**	ADT 14,600		RIGHT	**169**	**404**	ADT 14,600
SOUTH	LEFT	**41**	**56**	SOUTH LEG	SOUTH	LEFT	**63**	**108**	SOUTH LEG
BOUND	THRU	**247**	**301**	RATIO **9.7%**	BOUND	THRU	**519**	**821**	RATIO **13.0%**
	RIGHT	**11**	**12**	ADT 18,200		RIGHT	**19**	**21**	ADT 18,200
EAST	LEFT	**5**	**6**	EAST LEG	EAST	LEFT	**9**	**10**	EAST LEG
BOUND	THRU	**15**	**22**	RATIO **6.1%**	BOUND	THRU	**109**	**138**	RATIO **11.2%**
	RIGHT	**87**	**115**	ADT 10,700		RIGHT	**247**	**287**	ADT 10,700
WEST	LEFT	**62**	**184**	WEST LEG	WEST	LEFT	**136**	**381**	WEST LEG
BOUND	THRU	**63**	**85**	RATIO **6.8%**	BOUND	THRU	**62**	**89**	RATIO **9.1%**
	RIGHT	**42**	**71**	ADT 7,300		RIGHT	**46**	**82**	ADT 7,300

California Street (NS) / I-10 Freeway WB Ramps (EW) - #2

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2020 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL
NORTH	LEFT	**576**	SOUTH LEG		NORTH	LEFT	**454**	SOUTH LEG	
BOUND	THRU	**537**	IN ...	**1,160**	BOUND	THRU	**689**	IN ...	**1,190**
	RIGHT	**0**	OUT ...	**790**		RIGHT	**0**	OUT ...	**560**
SOUTH	LEFT	**0**	NORTH LEG		SOUTH	LEFT	**0**	NORTH LEG	
BOUND	THRU	**536**	IN ...	**1,240**	BOUND	THRU	**179**	IN ...	**590**
	RIGHT	**681**	OUT ...	**700**		RIGHT	**353**	OUT ...	**1,100**
EAST	LEFT	**0**	WEST LEG		EAST	LEFT	**0**	WEST LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**1,280**		RIGHT	**0**	OUT ...	**870**
WEST	LEFT	**224**	EAST LEG		WEST	LEFT	**343**	EAST LEG	
BOUND	THRU	**2**	IN ...	**380**	BOUND	THRU	**9**	IN ...	**740**
	RIGHT	**127**	OUT ...	**0**		RIGHT	**375**	OUT ...	**0**

YEAR 2020 TRAFFIC CONDITIONS										
MORNING PEAK HOUR RESULTS						EVENING PEAK HOUR RESULTS					
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP		APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP	
NORTH	LEFT	**576**	**593**	NORTH LEG		NORTH	LEFT	**454**	**473**	NORTH LEG	
BOUND	THRU	**537**	**564**	RATIO	**9.5%**	BOUND	THRU	**689**	**722**	RATIO	**8.3%**
	RIGHT	**0**	**0**	ADT	20,500		RIGHT	**0**	**0**	ADT	20,500
SOUTH	LEFT	**0**	**0**	SOUTH LEG		SOUTH	LEFT	**0**	**0**	SOUTH LEG	
BOUND	THRU	**536**	**552**	RATIO	**9.2%**	BOUND	THRU	**179**	**204**	RATIO	**8.2%**
	RIGHT	**681**	**701**	ADT	21,300		RIGHT	**353**	**388**	ADT	21,300
EAST	LEFT	**0**	**0**	EAST LEG		EAST	LEFT	**0**	**0**	EAST LEG	
BOUND	THRU	**0**	**0**	RATIO	**4.3%**	BOUND	THRU	**0**	**0**	RATIO	**8.6%**
	RIGHT	**0**	**0**	ADT	8,700		RIGHT	**0**	**0**	ADT	8,700
WEST	LEFT	**224**	**240**	WEST LEG		WEST	LEFT	**343**	**356**	WEST LEG	
BOUND	THRU	**2**	**2**	RATIO	**12.5%**	BOUND	THRU	**9**	**9**	RATIO	**8.4%**
	RIGHT	**127**	**136**	ADT	10,400		RIGHT	**375**	**386**	ADT	10,400

California Street (NS) / I-10 Freeway WB Ramps (EW) - #2

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL
NORTH	LEFT	**576**	SOUTH LEG		NORTH	LEFT	**454**	SOUTH LEG	
BOUND	THRU	**537**	IN ...	**1,200**	BOUND	THRU	**689**	IN ...	**1,250**
	RIGHT	**0**	OUT ...	**820**		RIGHT	**0**	OUT ...	**590**
SOUTH	LEFT	**0**	NORTH LEG		SOUTH	LEFT	**0**	NORTH LEG	
BOUND	THRU	**536**	IN ...	**1,260**	BOUND	THRU	**179**	IN ...	**650**
	RIGHT	**681**	OUT ...	**740**		RIGHT	**353**	OUT ...	**1,130**
EAST	LEFT	**0**	WEST LEG		EAST	LEFT	**0**	WEST LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**1,300**		RIGHT	**0**	OUT ...	**930**
WEST	LEFT	**224**	EAST LEG		WEST	LEFT	**343**	EAST LEG	
BOUND	THRU	**2**	IN ...	**400**	BOUND	THRU	**9**	IN ...	**750**
	RIGHT	**127**	OUT ...	**0**		RIGHT	**375**	OUT ...	**0**

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**576**	**605**	NORTH LEG	NORTH	LEFT	**454**	**497**	NORTH LEG
BOUND	THRU	**537**	**595**	RATIO **9.8%**	BOUND	THRU	**689**	**753**	RATIO **8.7%**
	RIGHT	**0**	**0**	ADT 20,500		RIGHT	**0**	**0**	ADT 20,500
SOUTH	LEFT	**0**	**0**	SOUTH LEG	SOUTH	LEFT	**0**	**0**	SOUTH LEG
BOUND	THRU	**536**	**567**	RATIO **9.5%**	BOUND	THRU	**179**	**226**	RATIO **8.6%**
	RIGHT	**681**	**701**	ADT 21,300		RIGHT	**353**	**424**	ADT 21,300
EAST	LEFT	**0**	**0**	EAST LEG	EAST	LEFT	**0**	**0**	EAST LEG
BOUND	THRU	**0**	**0**	RATIO **4.6%**	BOUND	THRU	**0**	**0**	RATIO **8.7%**
	RIGHT	**0**	**0**	ADT 8,700		RIGHT	**0**	**0**	ADT 8,700
WEST	LEFT	**224**	**253**	WEST LEG	WEST	LEFT	**343**	**364**	WEST LEG
BOUND	THRU	**2**	**2**	RATIO **12.6%**	BOUND	THRU	**9**	**9**	RATIO **8.9%**
	RIGHT	**127**	**145**	ADT 10,400		RIGHT	**375**	**386**	ADT 10,400

California Street (NS) / I-10 Freeway WB Ramps (EW) - #2

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL
NORTH	LEFT	**576**	SOUTH LEG		NORTH	LEFT	**454**	SOUTH LEG	
BOUND	THRU	**537**	IN ...	**1,630**	BOUND	THRU	**689**	IN ...	**1,730**
	RIGHT	**0**	OUT ...	**1,110**		RIGHT	**0**	OUT ...	**920**
SOUTH	LEFT	**0**	NORTH LEG		SOUTH	LEFT	**0**	NORTH LEG	
BOUND	THRU	**536**	IN ...	**1,440**	BOUND	THRU	**179**	IN ...	**1,200**
	RIGHT	**681**	OUT ...	**1,100**		RIGHT	**353**	OUT ...	**1,450**
EAST	LEFT	**0**	WEST LEG		EAST	LEFT	**0**	WEST LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**1,500**		RIGHT	**0**	OUT ...	**1,400**
WEST	LEFT	**224**	EAST LEG		WEST	LEFT	**343**	EAST LEG	
BOUND	THRU	**2**	IN ...	**630**	BOUND	THRU	**9**	IN ...	**840**
	RIGHT	**127**	OUT ...	**0**		RIGHT	**375**	OUT ...	**0**

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**576**	**762**	NORTH LEG	NORTH	LEFT	**454**	**668**	NORTH LEG
BOUND	THRU	**537**	**872**	RATIO **11.7%**	BOUND	THRU	**689**	**1,061**	RATIO **12.2%**
	RIGHT	**0**	**0**	ADT 21,900		RIGHT	**0**	**0**	ADT 21,900
SOUTH	LEFT	**0**	**0**	SOUTH LEG	SOUTH	LEFT	**0**	**0**	SOUTH LEG
BOUND	THRU	**536**	**709**	RATIO **9.9%**	BOUND	THRU	**179**	**477**	RATIO **9.6%**
	RIGHT	**681**	**749**	ADT 27,700		RIGHT	**353**	**723**	ADT 27,700
EAST	LEFT	**0**	**0**	EAST LEG	EAST	LEFT	**0**	**0**	EAST LEG
BOUND	THRU	**0**	**0**	RATIO **6.1%**	BOUND	THRU	**0**	**0**	RATIO **8.4%**
	RIGHT	**0**	**0**	ADT 10,300		RIGHT	**0**	**0**	ADT 10,300
WEST	LEFT	**224**	**401**	WEST LEG	WEST	LEFT	**343**	**443**	WEST LEG
BOUND	THRU	**2**	**3**	RATIO **10.7%**	BOUND	THRU	**9**	**10**	RATIO **9.9%**
	RIGHT	**127**	**228**	ADT 14,100		RIGHT	**375**	**413**	ADT 14,100

California Street (NS) / I-10 Freeway EB Ramps (EW) - #3

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2020 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL
NORTH	LEFT	**0**	SOUTH LEG		NORTH	LEFT	**0**	SOUTH LEG	
BOUND	THRU	**652**	IN ...	**970**	BOUND	THRU	**822**	IN ...	**1,310**
	RIGHT	**288**	OUT ...	**990**		RIGHT	**436**	OUT ...	**910**
SOUTH	LEFT	**74**	NORTH LEG		SOUTH	LEFT	**259**	NORTH LEG	
BOUND	THRU	**486**	IN ...	**590**	BOUND	THRU	**505**	IN ...	**800**
	RIGHT	**0**	OUT ...	**1,230**		RIGHT	**0**	OUT ...	**1,210**
EAST	LEFT	**528**	WEST LEG		EAST	LEFT	**338**	WEST LEG	
BOUND	THRU	**3**	IN ...	**1,030**	BOUND	THRU	**3**	IN ...	**730**
	RIGHT	**478**	OUT ...	**0**		RIGHT	**361**	OUT ...	**0**
WEST	LEFT	**0**	EAST LEG		WEST	LEFT	**0**	EAST LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**380**		RIGHT	**0**	OUT ...	**720**

YEAR 2020 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**0**	**0**	NORTH LEG	NORTH	LEFT	**0**	**0**	NORTH LEG
BOUND	THRU	**652**	**678**	RATIO **7.5%**	BOUND	THRU	**822**	**860**	RATIO **8.3%**
	RIGHT	**288**	**296**	ADT 24,300		RIGHT	**436**	**450**	ADT 24,300
SOUTH	LEFT	**74**	**81**	SOUTH LEG	SOUTH	LEFT	**259**	**267**	SOUTH LEG
BOUND	THRU	**486**	**512**	RATIO **7.5%**	BOUND	THRU	**505**	**533**	RATIO **8.4%**
	RIGHT	**0**	**0**	ADT 26,400		RIGHT	**0**	**0**	ADT 26,400
EAST	LEFT	**528**	**552**	EAST LEG	EAST	LEFT	**338**	**350**	EAST LEG
BOUND	THRU	**3**	**3**	RATIO **4.6%**	BOUND	THRU	**3**	**3**	RATIO **8.7%**
	RIGHT	**478**	**492**	ADT 8,300		RIGHT	**361**	**377**	ADT 8,300
WEST	LEFT	**0**	**0**	WEST LEG	WEST	LEFT	**0**	**0**	WEST LEG
BOUND	THRU	**0**	**0**	RATIO **11.9%**	BOUND	THRU	**0**	**0**	RATIO **8.3%**
	RIGHT	**0**	**0**	ADT 8,800		RIGHT	**0**	**0**	ADT 8,800

California Street (NS) / I-10 Freeway EB Ramps (EW) - #3

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL
NORTH	LEFT	**0**	SOUTH LEG		NORTH	LEFT	**0**	SOUTH LEG	
BOUND	THRU	**652**	IN ...	**1,010**	BOUND	THRU	**822**	IN ...	**1,370**
	RIGHT	**288**	OUT ...	**1,020**		RIGHT	**436**	OUT ...	**950**
SOUTH	LEFT	**74**	NORTH LEG		SOUTH	LEFT	**259**	NORTH LEG	
BOUND	THRU	**486**	IN ...	**620**	BOUND	THRU	**505**	IN ...	**840**
	RIGHT	**0**	OUT ...	**1,270**		RIGHT	**0**	OUT ...	**1,270**
EAST	LEFT	**528**	WEST LEG		EAST	LEFT	**338**	WEST LEG	
BOUND	THRU	**3**	IN ...	**1,050**	BOUND	THRU	**3**	IN ...	**760**
	RIGHT	**478**	OUT ...	**0**		RIGHT	**361**	OUT ...	**0**
WEST	LEFT	**0**	EAST LEG		WEST	LEFT	**0**	EAST LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**380**		RIGHT	**0**	OUT ...	**740**

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**0**	**0**	NORTH LEG	NORTH	LEFT	**0**	**0**	NORTH LEG
BOUND	THRU	**652**	**710**	RATIO **7.8%**	BOUND	THRU	**822**	**905**	RATIO **8.7%**
	RIGHT	**288**	**296**	ADT 24,300		RIGHT	**436**	**460**	ADT 24,300
SOUTH	LEFT	**74**	**81**	SOUTH LEG	SOUTH	LEFT	**259**	**276**	SOUTH LEG
BOUND	THRU	**486**	**537**	RATIO **7.7%**	BOUND	THRU	**505**	**561**	RATIO **8.8%**
	RIGHT	**0**	**0**	ADT 26,400		RIGHT	**0**	**0**	ADT 26,400
EAST	LEFT	**528**	**560**	EAST LEG	EAST	LEFT	**338**	**365**	EAST LEG
BOUND	THRU	**3**	**3**	RATIO **4.6%**	BOUND	THRU	**3**	**3**	RATIO **8.9%**
	RIGHT	**478**	**492**	ADT 8,300		RIGHT	**361**	**389**	ADT 8,300
WEST	LEFT	**0**	**0**	WEST LEG	WEST	LEFT	**0**	**0**	WEST LEG
BOUND	THRU	**0**	**0**	RATIO **12.0%**	BOUND	THRU	**0**	**0**	RATIO **8.6%**
	RIGHT	**0**	**0**	ADT 8,800		RIGHT	**0**	**0**	ADT 8,800

California Street (NS) / I-10 Freeway EB Ramps (EW) - #3

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL
NORTH	LEFT	**0**	SOUTH LEG		NORTH	LEFT	**0**	SOUTH LEG	
BOUND	THRU	**652**	IN ...	**1,300**	BOUND	THRU	**822**	IN ...	**1,810**
	RIGHT	**288**	OUT ...	**1,310**		RIGHT	**436**	OUT ...	**1,290**
SOUTH	LEFT	**74**	NORTH LEG		SOUTH	LEFT	**259**	NORTH LEG	
BOUND	THRU	**486**	IN ...	**910**	BOUND	THRU	**505**	IN ...	**1,160**
	RIGHT	**0**	OUT ...	**1,700**		RIGHT	**0**	OUT ...	**1,750**
EAST	LEFT	**528**	WEST LEG		EAST	LEFT	**338**	WEST LEG	
BOUND	THRU	**3**	IN ...	**1,230**	BOUND	THRU	**3**	IN ...	**980**
	RIGHT	**478**	OUT ...	**0**		RIGHT	**361**	OUT ...	**0**
WEST	LEFT	**0**	EAST LEG		WEST	LEFT	**0**	EAST LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**430**		RIGHT	**0**	OUT ...	**930**

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**0**	**0**	NORTH LEG	NORTH	LEFT	**0**	**0**	NORTH LEG
BOUND	THRU	**652**	**985**	RATIO **9.4%**	BOUND	THRU	**822**	**1,260**	RATIO **10.5%**
	RIGHT	**288**	**317**	ADT 27,700		RIGHT	**436**	**560**	ADT 27,700
SOUTH	LEFT	**74**	**111**	SOUTH LEG	SOUTH	LEFT	**259**	**367**	SOUTH LEG
BOUND	THRU	**486**	**798**	RATIO **8.3%**	BOUND	THRU	**505**	**799**	RATIO **9.8%**
	RIGHT	**0**	**0**	ADT 31,800		RIGHT	**0**	**0**	ADT 31,800
EAST	LEFT	**528**	**715**	EAST LEG	EAST	LEFT	**338**	**490**	EAST LEG
BOUND	THRU	**3**	**3**	RATIO **4.4%**	BOUND	THRU	**3**	**4**	RATIO **9.5%**
	RIGHT	**478**	**526**	ADT 9,800		RIGHT	**361**	**491**	ADT 9,800
WEST	LEFT	**0**	**0**	WEST LEG	WEST	LEFT	**0**	**0**	WEST LEG
BOUND	THRU	**0**	**0**	RATIO **11.3%**	BOUND	THRU	**0**	**0**	RATIO **9.0%**
	RIGHT	**0**	**0**	ADT 11,000		RIGHT	**0**	**0**	ADT 11,000

Project West Driveway (NS) / Lugonia Avenue (EW) - #4

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2020 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL
NORTH	LEFT	**0**	SOUTH LEG		NORTH	LEFT	**0**	SOUTH LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**60**		RIGHT	**0**	OUT ...	**0**
SOUTH	LEFT	**0**	NORTH LEG		SOUTH	LEFT	**0**	NORTH LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**0**		RIGHT	**0**	OUT ...	**0**
EAST	LEFT	**0**	WEST LEG		EAST	LEFT	**0**	WEST LEG	
BOUND	THRU	**87**	IN ...	**140**	BOUND	THRU	**283**	IN ...	**290**
	RIGHT	**39**	OUT ...	**230**		RIGHT	**1**	OUT ...	**240**
WEST	LEFT	**25**	EAST LEG		WEST	LEFT	**2**	EAST LEG	
BOUND	THRU	**211**	IN ...	**250**	BOUND	THRU	**231**	IN ...	**240**
	RIGHT	**0**	OUT ...	**100**		RIGHT	**0**	OUT ...	**290**

YEAR 2020 TRAFFIC CONDITIONS										
MORNING PEAK HOUR RESULTS						EVENING PEAK HOUR RESULTS					
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP		APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP	
NORTH	LEFT	**0**	**0**	NORTH LEG		NORTH	LEFT	**0**	**0**	NORTH LEG	
BOUND	THRU	**0**	**0**	RATIO	**-**	BOUND	THRU	**0**	**0**	RATIO	**-**
	RIGHT	**0**	**0**	ADT	0		RIGHT	**0**	**0**	ADT	0
SOUTH	LEFT	**0**	**0**	SOUTH LEG		SOUTH	LEFT	**0**	**0**	SOUTH LEG	
BOUND	THRU	**0**	**0**	RATIO	**-**	BOUND	THRU	**0**	**0**	RATIO	**-**
	RIGHT	**0**	**0**	ADT	0		RIGHT	**0**	**0**	ADT	0
EAST	LEFT	**0**	**0**	EAST LEG		EAST	LEFT	**0**	**0**	EAST LEG	
BOUND	THRU	**87**	**100**	RATIO	**5.5%**	BOUND	THRU	**283**	**291**	RATIO	**8.2%**
	RIGHT	**39**	**40**	ADT	6,500		RIGHT	**1**	**1**	ADT	6,500
WEST	LEFT	**25**	**26**	WEST LEG		WEST	LEFT	**2**	**2**	WEST LEG	
BOUND	THRU	**211**	**230**	RATIO	**5.7%**	BOUND	THRU	**231**	**240**	RATIO	**8.2%**
	RIGHT	**0**	**0**	ADT	6,500		RIGHT	**0**	**0**	ADT	6,500

Project West Driveway (NS) / Lugonia Avenue (EW) - #4

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL
NORTH	LEFT	**0**	SOUTH LEG		NORTH	LEFT	**0**	SOUTH LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**60**		RIGHT	**0**	OUT ...	**0**
SOUTH	LEFT	**0**	NORTH LEG		SOUTH	LEFT	**0**	NORTH LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**0**		RIGHT	**0**	OUT ...	**0**
EAST	LEFT	**0**	WEST LEG		EAST	LEFT	**0**	WEST LEG	
BOUND	THRU	**87**	IN ...	**150**	BOUND	THRU	**283**	IN ...	**320**
	RIGHT	**39**	OUT ...	**240**		RIGHT	**1**	OUT ...	**270**
WEST	LEFT	**25**	EAST LEG		WEST	LEFT	**2**	EAST LEG	
BOUND	THRU	**211**	IN ...	**260**	BOUND	THRU	**231**	IN ...	**270**
	RIGHT	**0**	OUT ...	**110**		RIGHT	**0**	OUT ...	**320**

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**0**	**0**	NORTH LEG	NORTH	LEFT	**0**	**0**	NORTH LEG
BOUND	THRU	**0**	**0**	RATIO **-**	BOUND	THRU	**0**	**0**	RATIO **-**
	RIGHT	**0**	**0**	ADT 0		RIGHT	**0**	**0**	ADT 0
SOUTH	LEFT	**0**	**0**	SOUTH LEG	SOUTH	LEFT	**0**	**0**	SOUTH LEG
BOUND	THRU	**0**	**0**	RATIO **-**	BOUND	THRU	**0**	**0**	RATIO **-**
	RIGHT	**0**	**0**	ADT 0		RIGHT	**0**	**0**	ADT 0
EAST	LEFT	**0**	**0**	EAST LEG	EAST	LEFT	**0**	**0**	EAST LEG
BOUND	THRU	**87**	**110**	RATIO **5.8%**	BOUND	THRU	**283**	**320**	RATIO **9.1%**
	RIGHT	**39**	**40**	ADT 6,500		RIGHT	**1**	**1**	ADT 6,500
WEST	LEFT	**25**	**26**	WEST LEG	WEST	LEFT	**2**	**2**	WEST LEG
BOUND	THRU	**211**	**240**	RATIO **6.0%**	BOUND	THRU	**231**	**270**	RATIO **9.1%**
	RIGHT	**0**	**0**	ADT 6,500		RIGHT	**0**	**0**	ADT 6,500

Project West Driveway (NS) / Lugonia Avenue (EW) - #4

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL
NORTH	LEFT	**0**	SOUTH LEG		NORTH	LEFT	**0**	SOUTH LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**60**		RIGHT	**0**	OUT ...	**0**
SOUTH	LEFT	**0**	NORTH LEG		SOUTH	LEFT	**0**	NORTH LEG	
BOUND	THRU	**0**	IN ...	**0**	BOUND	THRU	**0**	IN ...	**0**
	RIGHT	**0**	OUT ...	**0**		RIGHT	**0**	OUT ...	**0**
EAST	LEFT	**0**	WEST LEG		EAST	LEFT	**0**	WEST LEG	
BOUND	THRU	**87**	IN ...	**300**	BOUND	THRU	**283**	IN ...	**580**
	RIGHT	**39**	OUT ...	**380**		RIGHT	**1**	OUT ...	**530**
WEST	LEFT	**25**	EAST LEG		WEST	LEFT	**2**	EAST LEG	
BOUND	THRU	**211**	IN ...	**400**	BOUND	THRU	**231**	IN ...	**530**
	RIGHT	**0**	OUT ...	**250**		RIGHT	**0**	OUT ...	**580**

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**0**	**0**	NORTH LEG	NORTH	LEFT	**0**	**0**	NORTH LEG
BOUND	THRU	**0**	**0**	RATIO **-**	BOUND	THRU	**0**	**0**	RATIO **-**
	RIGHT	**0**	**0**	ADT 0		RIGHT	**0**	**0**	ADT 0
SOUTH	LEFT	**0**	**0**	SOUTH LEG	SOUTH	LEFT	**0**	**0**	SOUTH LEG
BOUND	THRU	**0**	**0**	RATIO **-**	BOUND	THRU	**0**	**0**	RATIO **-**
	RIGHT	**0**	**0**	ADT 0		RIGHT	**0**	**0**	ADT 0
EAST	LEFT	**0**	**0**	EAST LEG	EAST	LEFT	**0**	**0**	EAST LEG
BOUND	THRU	**87**	**250**	RATIO **6.1%**	BOUND	THRU	**283**	**580**	RATIO **10.4%**
	RIGHT	**39**	**43**	ADT 10,700		RIGHT	**1**	**1**	ADT 10,700
WEST	LEFT	**25**	**28**	WEST LEG	WEST	LEFT	**2**	**2**	WEST LEG
BOUND	THRU	**211**	**380**	RATIO **6.3%**	BOUND	THRU	**231**	**530**	RATIO **10.4%**
	RIGHT	**0**	**0**	ADT 10,700		RIGHT	**0**	**0**	ADT 10,700

Nevada Street (NS) / Lugonia Avenue (EW) - #7

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2020 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2020 TOTAL
NORTH	LEFT	**56**	SOUTH LEG		NORTH	LEFT	**39**	SOUTH LEG	
BOUND	THRU	**111**	IN ...	**230**	BOUND	THRU	**266**	IN ...	**500**
	RIGHT	**62**	OUT ...	**330**		RIGHT	**185**	OUT ...	**420**
SOUTH	LEFT	**19**	NORTH LEG		SOUTH	LEFT	**61**	NORTH LEG	
BOUND	THRU	**183**	IN ...	**240**	BOUND	THRU	**203**	IN ...	**300**
	RIGHT	**24**	OUT ...	**150**		RIGHT	**7**	OUT ...	**330**
EAST	LEFT	**9**	WEST LEG		EAST	LEFT	**24**	WEST LEG	
BOUND	THRU	**67**	IN ...	**110**	BOUND	THRU	**322**	IN ...	**450**
	RIGHT	**18**	OUT ...	**270**		RIGHT	**69**	OUT ...	**230**
WEST	LEFT	**132**	EAST LEG		WEST	LEFT	**137**	EAST LEG	
BOUND	THRU	**170**	IN ...	**330**	BOUND	THRU	**153**	IN ...	**320**
	RIGHT	**14**	OUT ...	**160**		RIGHT	**18**	OUT ...	**590**

YEAR 2020 TRAFFIC CONDITIONS										
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS					
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2020 FORECAST	PEAK - DAILY RELATIONSHIP	
NORTH	LEFT	**56**	**58**	NORTH LEG	NORTH	LEFT	**39**	**45**	NORTH LEG	
BOUND	THRU	**111**	**120**	RATIO **5.1%**	BOUND	THRU	**266**	**282**	RATIO **8.3%**	
	RIGHT	**62**	**64**	ADT 7,600		RIGHT	**185**	**190**	ADT 7,600	
SOUTH	LEFT	**19**	**23**	SOUTH LEG	SOUTH	LEFT	**61**	**68**	SOUTH LEG	
BOUND	THRU	**183**	**188**	RATIO **5.5%**	BOUND	THRU	**203**	**222**	RATIO **9.0%**	
	RIGHT	**24**	**29**	ADT 10,600		RIGHT	**7**	**10**	ADT 10,600	
EAST	LEFT	**9**	**12**	EAST LEG	EAST	LEFT	**24**	**29**	EAST LEG	
BOUND	THRU	**67**	**79**	RATIO **4.8%**	BOUND	THRU	**322**	**348**	RATIO **8.9%**	
	RIGHT	**18**	**19**	ADT 10,600		RIGHT	**69**	**73**	ADT 10,600	
WEST	LEFT	**132**	**136**	WEST LEG	WEST	LEFT	**137**	**141**	WEST LEG	
BOUND	THRU	**170**	**188**	RATIO **4.6%**	BOUND	THRU	**153**	**176**	RATIO **8.2%**	
	RIGHT	**14**	**18**	ADT 8,300		RIGHT	**18**	**19**	ADT 8,300	

Nevada Street (NS) / Lugonia Avenue (EW) - #7

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2022 TOTAL
NORTH	LEFT	**56**	SOUTH LEG		NORTH	LEFT	**39**	SOUTH LEG	
BOUND	THRU	**111**	IN ...	**240**	BOUND	THRU	**266**	IN ...	**510**
	RIGHT	**62**	OUT ...	**340**		RIGHT	**185**	OUT ...	**420**
SOUTH	LEFT	**19**	NORTH LEG		SOUTH	LEFT	**61**	NORTH LEG	
BOUND	THRU	**183**	IN ...	**250**	BOUND	THRU	**203**	IN ...	**330**
	RIGHT	**24**	OUT ...	**170**		RIGHT	**7**	OUT ...	**350**
EAST	LEFT	**9**	WEST LEG		EAST	LEFT	**24**	WEST LEG	
BOUND	THRU	**67**	IN ...	**120**	BOUND	THRU	**322**	IN ...	**480**
	RIGHT	**18**	OUT ...	**280**		RIGHT	**69**	OUT ...	**260**
WEST	LEFT	**132**	EAST LEG		WEST	LEFT	**137**	EAST LEG	
BOUND	THRU	**170**	IN ...	**350**	BOUND	THRU	**153**	IN ...	**330**
	RIGHT	**14**	OUT ...	**160**		RIGHT	**18**	OUT ...	**610**

YEAR 2022 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2022 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**56**	**58**	NORTH LEG	NORTH	LEFT	**39**	**50**	NORTH LEG
BOUND	THRU	**111**	**133**	RATIO **5.5%**	BOUND	THRU	**266**	**295**	RATIO **8.9%**
	RIGHT	**62**	**64**	ADT 7,600		RIGHT	**185**	**190**	ADT 7,600
SOUTH	LEFT	**19**	**23**	SOUTH LEG	SOUTH	LEFT	**61**	**78**	SOUTH LEG
BOUND	THRU	**183**	**193**	RATIO **5.7%**	BOUND	THRU	**203**	**237**	RATIO **9.3%**
	RIGHT	**24**	**31**	ADT 10,600		RIGHT	**7**	**13**	ADT 10,600
EAST	LEFT	**9**	**16**	EAST LEG	EAST	LEFT	**24**	**35**	EAST LEG
BOUND	THRU	**67**	**84**	RATIO **5.0%**	BOUND	THRU	**322**	**370**	RATIO **9.4%**
	RIGHT	**18**	**20**	ADT 10,600		RIGHT	**69**	**72**	ADT 10,600
WEST	LEFT	**132**	**136**	WEST LEG	WEST	LEFT	**137**	**141**	WEST LEG
BOUND	THRU	**170**	**198**	RATIO **4.9%**	BOUND	THRU	**153**	**197**	RATIO **8.9%**
	RIGHT	**14**	**21**	ADT 8,300		RIGHT	**18**	**20**	ADT 8,300

Nevada Street (NS) / Lugonia Avenue (EW) - #7

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES

NCHRP 255

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR INPUT DATA					EVENING PEAK HOUR INPUT DATA				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	APPROACH	YEAR 2040 TOTAL
NORTH	LEFT	**56**	SOUTH LEG		NORTH	LEFT	**39**	SOUTH LEG	
BOUND	THRU	**111**	IN ...	**270**	BOUND	THRU	**266**	IN ...	**580**
	RIGHT	**62**	OUT ...	**380**		RIGHT	**185**	OUT ...	**470**
SOUTH	LEFT	**19**	NORTH LEG		SOUTH	LEFT	**61**	NORTH LEG	
BOUND	THRU	**183**	IN ...	**330**	BOUND	THRU	**203**	IN ...	**580**
	RIGHT	**24**	OUT ...	**330**		RIGHT	**7**	OUT ...	**530**
EAST	LEFT	**9**	WEST LEG		EAST	LEFT	**24**	WEST LEG	
BOUND	THRU	**67**	IN ...	**260**	BOUND	THRU	**322**	IN ...	**730**
	RIGHT	**18**	OUT ...	**420**		RIGHT	**69**	OUT ...	**510**
WEST	LEFT	**132**	EAST LEG		WEST	LEFT	**137**	EAST LEG	
BOUND	THRU	**170**	IN ...	**470**	BOUND	THRU	**153**	IN ...	**410**
	RIGHT	**14**	OUT ...	**210**		RIGHT	**18**	OUT ...	**790**

YEAR 2040 TRAFFIC CONDITIONS									
MORNING PEAK HOUR RESULTS					EVENING PEAK HOUR RESULTS				
APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP	APPROACH	TURNING MOVEMENT	BASE YEAR COUNT	YEAR 2040 FORECAST	PEAK - DAILY RELATIONSHIP
NORTH	LEFT	**56**	**62**	NORTH LEG	NORTH	LEFT	**39**	**91**	NORTH LEG
BOUND	THRU	**111**	**198**	RATIO **8.0%**	BOUND	THRU	**266**	**393**	RATIO **13.3%**
	RIGHT	**62**	**68**	ADT 8,300		RIGHT	**185**	**204**	ADT 8,300
SOUTH	LEFT	**19**	**30**	SOUTH LEG	SOUTH	LEFT	**61**	**154**	SOUTH LEG
BOUND	THRU	**183**	**236**	RATIO **6.2%**	BOUND	THRU	**203**	**346**	RATIO **10.6%**
	RIGHT	**24**	**66**	ADT 11,900		RIGHT	**7**	**78**	ADT 11,900
EAST	LEFT	**9**	**78**	EAST LEG	EAST	LEFT	**24**	**112**	EAST LEG
BOUND	THRU	**67**	**151**	RATIO **5.9%**	BOUND	THRU	**322**	**538**	RATIO **11.0%**
	RIGHT	**18**	**34**	ADT 12,900		RIGHT	**69**	**78**	ADT 12,900
WEST	LEFT	**132**	**145**	WEST LEG	WEST	LEFT	**137**	**151**	WEST LEG
BOUND	THRU	**170**	**307**	RATIO **6.5%**	BOUND	THRU	**153**	**341**	RATIO **11.6%**
	RIGHT	**14**	**55**	ADT 10,700		RIGHT	**18**	**25**	ADT 10,700

APPENDIX F

LEVEL OF SERVICE WORKSHEETS

EXISTING

Westgrove Apartments

Vistro File: G:\...\AME_PH1.vistro
Report File: G:\...\AME_PH1.pdf

Scenario 1 Existing
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.448	21.0	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	1.040	64.5	E
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.643	23.5	C
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.000	11.4	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.368	11.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	21.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.448

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	235	490	85	41	247	11	5	15	87	62	63	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	235	490	85	41	247	11	5	15	87	62	63	42
Peak Hour Factor	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	124	22	10	63	3	1	4	22	16	16	11
Total Analysis Volume [veh/h]	239	498	86	42	251	11	5	15	88	63	64	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	26	0	11	21	0	0	12	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	37	37	4	30	30	6	6	7	7	7
g / C, Green / Cycle	0.16	0.53	0.53	0.06	0.42	0.42	0.09	0.09	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.14	0.28	0.06	0.02	0.07	0.01	0.01	0.06	0.04	0.04	0.03
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1778	1530	1718	1638	1530
c, Capacity [veh/h]	283	950	808	99	1442	644	158	136	168	160	149
d1, Uniform Delay [s]	28.46	10.83	8.30	31.96	12.72	11.87	29.49	30.93	29.75	29.72	29.44
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.81	2.07	0.27	2.84	0.26	0.05	0.36	5.06	1.50	1.50	1.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.52	0.11	0.42	0.17	0.02	0.13	0.65	0.39	0.38	0.29
d, Delay for Lane Group [s/veh]	35.27	12.90	8.56	34.80	12.98	11.92	29.84	35.99	31.25	31.21	30.49
Lane Group LOS	D	B	A	C	B	B	C	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.07	4.40	0.57	0.72	1.09	0.09	0.30	1.52	1.03	0.95	0.66
50th-Percentile Queue Length [ft/ln]	101.68	110.02	14.25	17.89	27.34	2.35	7.57	37.91	25.82	23.87	16.60
95th-Percentile Queue Length [veh/ln]	7.32	7.84	1.03	1.29	1.97	0.17	0.54	2.73	1.86	1.72	1.20
95th-Percentile Queue Length [ft/ln]	183.03	196.03	25.64	32.21	49.22	4.22	13.62	68.24	46.47	42.97	29.89

Movement, Approach, & Intersection Results

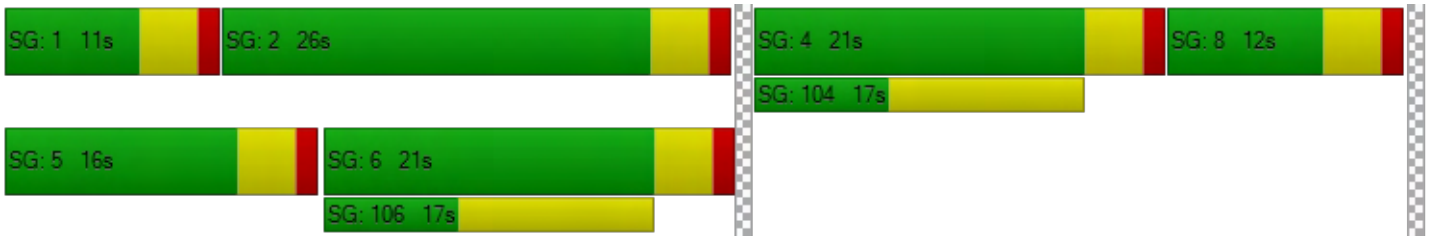
d_M, Delay for Movement [s/veh]	35.27	12.90	8.56	34.80	12.98	11.92	29.84	29.84	35.99	31.25	31.21	30.49
Movement LOS	D	B	A	C	B	B	C	C	D	C	C	C
d_A, Approach Delay [s/veh]	18.94			15.96			34.85			31.05		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	20.98											
Intersection LOS	C											
Intersection V/C	0.448											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	24.86	24.86	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.974	2.272	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	629	486	229	486
d_b, Bicycle Delay [s]	16.46	20.06	27.46	20.06
l_b,int, Bicycle LOS Score for Intersection	2.918	1.810	1.738	1.700
Bicycle LOS	C	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	64.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.040

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	576	537	0	0	536	681	0	0	0	224	2	127
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	576	537	0	0	536	681	0	0	0	224	2	127
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	156	145	0	0	145	184	0	0	0	61	1	34
Total Analysis Volume [veh/h]	622	580	0	0	579	736	0	0	0	242	2	137
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	42	96	0	0	54	0	0	0	0	0	19	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	115	115	115	115		115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	38	92	50	50		15	15
g / C, Green / Cycle	0.33	0.80	0.43	0.43		0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.36	0.17	0.12	0.48		0.14	0.09
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1715	1530
c, Capacity [veh/h]	566	2741	2131	665		224	200
d1, Uniform Delay [s]	38.50	2.78	20.84	32.50		49.97	47.71
k, delay calibration	0.50	0.50	0.50	0.50		0.12	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	67.60	0.18	0.31	67.91		56.15	4.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.10	0.21	0.27	1.11		1.09	0.69
d, Delay for Lane Group [s/veh]	106.10	2.95	21.15	100.41		106.13	51.82
Lane Group LOS	F	A	C	F		F	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	25.70	1.05	3.23	29.59		9.91	3.97
50th-Percentile Queue Length [ft/ln]	642.52	26.36	80.83	739.70		247.86	99.32
95th-Percentile Queue Length [veh/ln]	36.17	1.90	5.82	41.43		15.63	7.15
95th-Percentile Queue Length [ft/ln]	904.27	47.44	145.50	1035.73		390.83	178.78

Movement, Approach, & Intersection Results

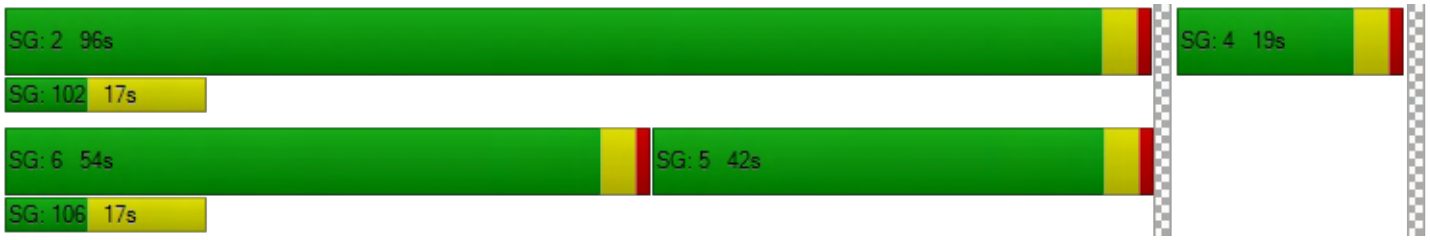
d_M, Delay for Movement [s/veh]	106.10	2.95	0.00	0.00	21.15	100.41	0.00	0.00	0.00	106.13	106.13	51.82
Movement LOS	F	A			C	F				F	F	D
d_A, Approach Delay [s/veh]	56.33			65.51			0.00			86.60		
Approach LOS	E			E			A			F		
d_I, Intersection Delay [s/veh]	64.48											
Intersection LOS	E											
Intersection V/C	1.040											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	47.03	47.03
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.761	1.912
Crosswalk LOS	F	F	C	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1600	870	0	261
d_b, Bicycle Delay [s]	2.30	18.37	57.50	43.48
l_b,int, Bicycle LOS Score for Intersection	2.551	2.283	4.132	2.188
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	23.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.643

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	652	288	74	486	0	528	3	478	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	652	288	74	486	0	528	3	478	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	175	77	20	131	0	142	1	128	0	0	0
Total Analysis Volume [veh/h]	0	700	309	79	522	0	567	3	513	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	4.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	23	0	12	35	0	0	30	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	65	65	65	65	65	65	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	19	19	8	31	26	26	
g / C, Green / Cycle	0.29	0.29	0.12	0.48	0.40	0.40	
(v / s)_i Volume / Saturation Flow Rate	0.14	0.20	0.05	0.15	0.33	0.34	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1433	447	211	1635	686	612	
d1, Uniform Delay [s]	18.99	20.40	26.20	10.49	17.53	17.60	
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.19	8.48	5.02	0.52	11.25	12.94	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.49	0.69	0.37	0.32	0.83	0.84	
d, Delay for Lane Group [s/veh]	20.18	28.88	31.22	11.01	28.77	30.54	
Lane Group LOS	C	C	C	B	C	C	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	2.67	4.62	1.31	1.93	8.93	8.33	
50th-Percentile Queue Length [ft/ln]	66.65	115.52	32.75	48.18	223.24	208.37	
95th-Percentile Queue Length [veh/ln]	4.80	8.15	2.36	3.47	13.83	13.07	
95th-Percentile Queue Length [ft/ln]	119.97	203.65	58.95	86.73	345.76	326.74	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	20.18	28.88	31.22	11.01	0.00	28.77	28.77	30.54	0.00	0.00	0.00
Movement LOS		C	C	C	B		C	C	C			
d_A, Approach Delay [s/veh]	22.84			13.66			29.61			0.00		
Approach LOS	C			B			C			A		
d_I, Intersection Delay [s/veh]	23.52											
Intersection LOS	C											
Intersection V/C	0.643											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	22.43	22.43
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.225	1.787
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	585	954	800	0
d_b, Bicycle Delay [s]	16.28	8.89	11.70	32.50
l_b,int, Bicycle LOS Score for Intersection	2.115	2.055	3.347	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	87	39	25	211	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	87	39	25	211	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	24	10	7	57	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	95	41	26	229	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	No		
Number of Storage Spaces in Median	1	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	10.91	0.00	8.82	11.45	0.00	9.42	0.00	0.00	0.00	7.51	0.00	0.00
Movement LOS	B		A	B		A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31	1.31	0.00
d_A, Approach Delay [s/veh]	9.87			10.43			0.00			0.77		
Approach LOS	A			B			A			A		
d_I, Intersection Delay [s/veh]	0.50											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.368

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	56	111	62	19	183	24	9	67	18	132	170	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	111	62	19	183	24	9	67	18	132	170	14
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	31	18	5	52	7	3	19	5	37	48	4
Total Analysis Volume [veh/h]	64	126	70	22	208	27	10	76	20	150	193	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	525	588	525	565	632	497	533	593	523	564	574
Degree of Utilization, x	0.12	0.33	0.04	0.37	0.04	0.02	0.14	0.03	0.29	0.19	0.18

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.41	1.46	0.13	1.69	0.13	0.06	0.49	0.10	1.18	0.67	0.66
95th-Percentile Queue Length [ft]	10.35	36.49	3.28	42.14	3.34	1.54	12.36	2.61	29.40	16.85	16.52
Approach Delay [s/veh]	11.54		12.07			10.23			11.23		
Approach LOS	B		B			B			B		
Intersection Delay [s/veh]	11.42										
Intersection LOS	B										

Westgrove Apartments

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Scenario 1 Existing
9/3/2019

Turning Movement Volume: Detail

ID	Intersection Name	Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
			Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	California Street (NS) at Lugonia Avenue (EW)	Final Base	235	490	85	41	247	11	5	15	87	62	63	42	1383
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0	0	0	0	0
		Future Total	**235**	**490**	**85**	**41**	**247**	**11**	**5**	**15**	**87**	**62**	**63**	**42**	**1383**

ID	Intersection Name	Volume Type	Northbound		Southbound		Westbound			Total Volume
			Left	Thru	Thru	Right	Left	Thru	Right	
2	California Street (NS) at I-10 WB Ramps (EW)	Final Base	576	537	536	681	224	2	127	2683
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		Future Total	**576**	**537**	**536**	**681**	**224**	**2**	**127**	**2683**

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound			Total Volume
			Thru	Right	Left	Thru	Left	Thru	Right	
3	California Street (NS) at I-10 EB Ramps (EW)	Final Base	652	288	74	486	528	3	478	2509
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0
		Future Total	**652**	**288**	**74**	**486**	**528**	**3**	**478**	**2509**

ID	Intersection Name	Volume Type	Northbound		Southbound		Eastbound		Westbound		Total Volume
			Left	Right	Left	Right	Thru	Right	Left	Thru	
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Final Base	0	0	0	0	87	39	25	211	362
		Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
		In Process	0	0	0	0	0	0	0	0	0
		Net New Trips	0	0	0	0	0	0	0	0	0
		Other	0	0	0	0	0	0	0	0	0
		Future Total	**0**	**0**	**0**	**0**	**87**	**39**	**25**	**211**	**362**

Westgrove Apartments

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Scenario 1 Existing
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.560	23.6	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	0.853	35.0	C
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.748	26.4	C
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.000	13.2	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	EB Thru	0.763	20.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	23.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.560

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	103	250	169	63	519	19	9	109	247	136	62	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	250	169	63	519	19	9	109	247	136	62	46
Peak Hour Factor	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	68	46	17	141	5	2	30	67	37	17	12
Total Analysis Volume [veh/h]	112	272	184	68	564	21	10	118	268	148	67	50
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	20	0	13	21	0	0	11	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	23	23	5	22	22	13	13	8	8	8
g / C, Green / Cycle	0.09	0.35	0.35	0.08	0.33	0.33	0.21	0.21	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.07	0.15	0.12	0.04	0.16	0.01	0.07	0.18	0.09	0.04	0.03
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1793	1530	1714	1638	1530
c, Capacity [veh/h]	163	631	536	134	1143	510	366	313	209	199	186
d1, Uniform Delay [s]	28.58	16.22	15.65	28.87	17.35	14.70	22.25	25.05	27.56	26.26	26.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.01	2.14	1.74	2.93	1.52	0.15	0.57	6.75	4.41	0.99	0.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.43	0.34	0.51	0.49	0.04	0.35	0.86	0.71	0.34	0.27
d, Delay for Lane Group [s/veh]	33.59	18.36	17.39	31.80	18.87	14.85	22.82	31.79	31.98	27.24	26.80
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.76	2.99	1.97	1.04	3.10	0.20	1.55	4.10	2.26	0.92	0.68
50th-Percentile Queue Length [ft/ln]	44.09	74.83	49.21	25.97	77.59	5.05	38.73	102.54	56.39	22.93	16.95
95th-Percentile Queue Length [veh/ln]	3.17	5.39	3.54	1.87	5.59	0.36	2.79	7.38	4.06	1.65	1.22
95th-Percentile Queue Length [ft/ln]	79.36	134.70	88.57	46.75	139.67	9.09	69.72	184.57	101.51	41.27	30.50

Movement, Approach, & Intersection Results

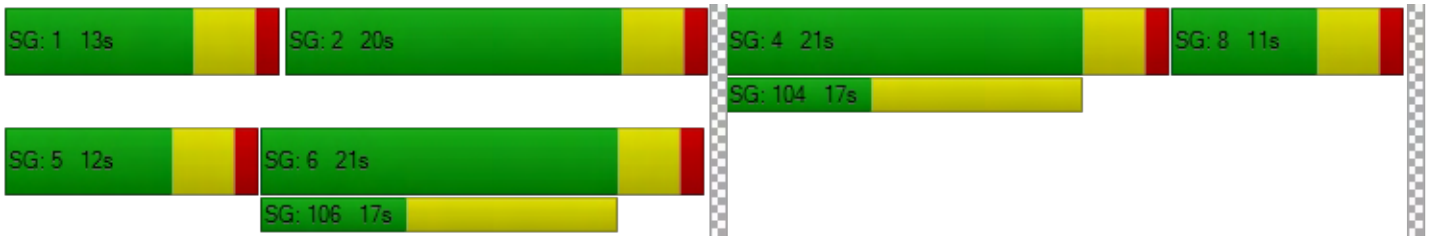
d_M, Delay for Movement [s/veh]	33.59	18.36	17.39	31.80	18.87	14.85	22.82	22.82	31.79	31.98	27.24	26.80
Movement LOS	C	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	21.05			20.09			28.89			29.80		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	23.60											
Intersection LOS	C											
Intersection V/C	0.560											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	22.43	22.43	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.991	2.331	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	492	523	215	523
d_b, Bicycle Delay [s]	18.47	17.72	25.88	17.72
I_b,int, Bicycle LOS Score for Intersection	2.497	2.098	2.213	1.778
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	35.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.853

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	454	689	0	0	179	353	0	0	0	343	9	375
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	454	689	0	0	179	353	0	0	0	343	9	375
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	122	185	0	0	48	95	0	0	0	92	2	101
Total Analysis Volume [veh/h]	488	740	0	0	192	379	0	0	0	369	10	403
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	32	60	0	0	28	0	0	0	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	27	57	25	25		25	25
g / C, Green / Cycle	0.30	0.63	0.28	0.28		0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.28	0.22	0.04	0.25		0.22	0.26
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1716	1530
c, Capacity [veh/h]	518	2155	1383	432		485	432
d1, Uniform Delay [s]	30.64	7.91	24.15	30.85		29.75	31.47
k, delay calibration	0.34	0.50	0.50	0.50		0.20	0.30
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	21.33	0.44	0.21	21.57		5.14	20.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.34	0.14	0.88		0.78	0.93
d, Delay for Lane Group [s/veh]	51.97	8.35	24.36	52.42		34.89	51.94
Lane Group LOS	D	A	C	D		C	D
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	12.54	2.83	0.98	9.83		8.02	10.70
50th-Percentile Queue Length [ft/ln]	313.60	70.69	24.62	245.78		200.47	267.45
95th-Percentile Queue Length [veh/ln]	18.35	5.09	1.77	14.97		12.66	16.06
95th-Percentile Queue Length [ft/ln]	458.81	127.24	44.31	374.33		316.58	401.55

Movement, Approach, & Intersection Results

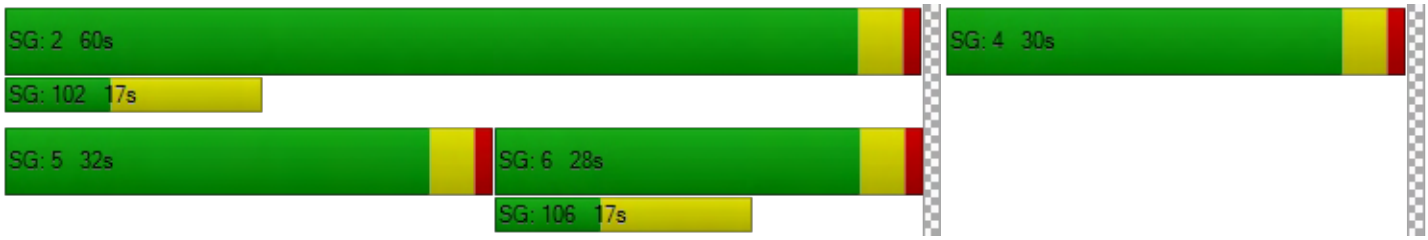
d_M, Delay for Movement [s/veh]	51.97	8.35	0.00	0.00	24.36	52.42	0.00	0.00	0.00	34.89	34.89	51.94
Movement LOS	D	A			C	D				C	C	D
d_A, Approach Delay [s/veh]	25.69			42.98			0.00			43.68		
Approach LOS	C			D			A			D		
d_I, Intersection Delay [s/veh]	34.96											
Intersection LOS	C											
Intersection V/C	0.853											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.278	2.096
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1244	533	0	578
d_b, Bicycle Delay [s]	6.42	24.20	45.00	22.76
l_b,int, Bicycle LOS Score for Intersection	2.573	1.874	4.132	2.850
Bicycle LOS	B	A	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.748

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	822	436	259	505	0	338	3	361	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	822	436	259	505	0	338	3	361	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	214	113	67	131	0	88	1	94	0	0	0
Total Analysis Volume [veh/h]	0	854	453	269	525	0	351	3	375	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	59.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	37	0	22	59	0	0	31	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	38	38	16	58	24	24	
g / C, Green / Cycle	0.42	0.42	0.18	0.64	0.27	0.27	
(v / s)_i Volume / Saturation Flow Rate	0.17	0.30	0.16	0.15	0.21	0.25	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	2059	642	304	2199	462	412	
d1, Uniform Delay [s]	18.35	21.52	36.14	6.83	30.27	31.82	
k, delay calibration	0.50	0.50	0.11	0.50	0.17	0.26	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.62	6.39	8.46	0.26	4.20	16.12	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.41	0.71	0.89	0.24	0.77	0.91	
d, Delay for Lane Group [s/veh]	18.96	27.92	44.61	7.08	34.47	47.94	
Lane Group LOS	B	C	D	A	C	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	3.89	8.18	6.14	1.75	7.40	9.49	
50th-Percentile Queue Length [ft/ln]	97.16	204.40	153.57	43.75	185.07	237.24	
95th-Percentile Queue Length [veh/ln]	7.00	12.87	10.21	3.15	11.86	14.54	
95th-Percentile Queue Length [ft/ln]	174.88	321.63	255.19	78.75	296.62	363.54	

Movement, Approach, & Intersection Results

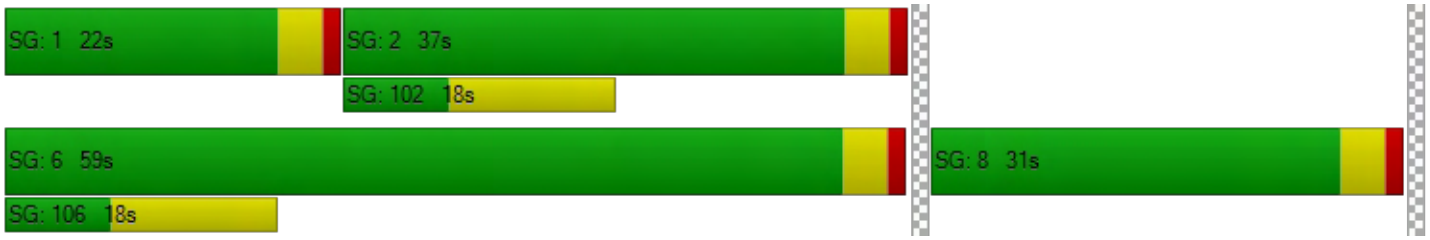
d_M, Delay for Movement [s/veh]	0.00	18.96	27.92	44.61	7.08	0.00	34.47	34.47	47.94	0.00	0.00	0.00
Movement LOS		B	C	D	A		C	C	D			
d_A, Approach Delay [s/veh]	22.07			19.80			41.40			0.00		
Approach LOS	C			B			D			A		
d_I, Intersection Delay [s/veh]	26.41											
Intersection LOS	C											
Intersection V/C	0.748											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.070	2.130
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	1222	600	0
d_b, Bicycle Delay [s]	18.05	6.81	22.05	45.00
l_b,int, Bicycle LOS Score for Intersection	2.278	2.215	2.762	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	283	1	2	231	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	283	1	2	231	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	77	0	1	63	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	308	1	2	251	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	No		
Number of Storage Spaces in Median	1	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.76	0.00	9.89	13.20	0.00	9.54	0.00	0.00	0.00	7.85	0.00	0.00
Movement LOS	B		A	B		A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.00
d_A, Approach Delay [s/veh]	10.83			11.37			0.00			0.06		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.03											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	20.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.763

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	39	266	185	61	203	7	24	322	69	137	153	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	266	185	61	203	7	24	322	69	137	153	18
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	72	50	16	55	2	6	87	19	37	41	5
Total Analysis Volume [veh/h]	42	287	200	66	219	8	26	348	75	148	165	19
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	468	517	427	452	492	430	457	499	403	426	433
Degree of Utilization, x	0.70	0.39	0.15	0.48	0.02	0.06	0.76	0.15	0.37	0.22	0.21

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	5.41	1.81	0.54	2.59	0.05	0.19	6.51	0.53	1.66	0.81	0.79
95th-Percentile Queue Length [ft]	135.29	45.27	13.55	64.78	1.24	4.81	162.83	13.14	41.51	20.28	19.85
Approach Delay [s/veh]	21.84		16.53			27.17			14.88		
Approach LOS	C		C			D			B		
Intersection Delay [s/veh]	20.92										
Intersection LOS	C										

EXISTING PLUS PROJECT

Westgrove Apartments

Vistro File: G:\...\AME_PH1.vistro
Report File: G:\...\AMEp_PH1.pdf

Scenario 2 Existing Plus Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.475	21.5	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	1.060	67.8	E
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.630	29.7	C
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.008	12.0	B
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.047	11.1	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	EB Left	0.000	10.9	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.372	11.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.475

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	235	490	85	41	247	11	5	15	87	62	63	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	1	0	0	0	0	0	41	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	235	490	98	42	247	11	5	15	87	103	63	46
Peak Hour Factor	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	60	124	25	11	63	3	1	4	22	26	16	12
Total Analysis Volume [veh/h]	239	498	100	43	251	11	5	15	88	105	64	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	16	26	0	11	21	0	0	12	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	37	37	4	29	29	6	6	7	7	7
g / C, Green / Cycle	0.16	0.53	0.53	0.06	0.42	0.42	0.09	0.09	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.14	0.28	0.07	0.03	0.07	0.01	0.01	0.06	0.06	0.04	0.03
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1778	1530	1714	1638	1530
c, Capacity [veh/h]	283	945	803	101	1434	640	158	136	171	163	152
d1, Uniform Delay [s]	28.46	10.97	8.49	31.92	12.81	11.96	29.49	30.93	30.33	29.63	29.38
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.81	2.10	0.32	2.84	0.27	0.05	0.36	5.06	3.56	1.53	1.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.53	0.12	0.43	0.17	0.02	0.13	0.65	0.61	0.39	0.31
d, Delay for Lane Group [s/veh]	35.27	13.07	8.81	34.76	13.08	12.01	29.84	35.99	33.89	31.16	30.51
Lane Group LOS	D	B	A	C	B	B	C	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.07	4.45	0.68	0.73	1.10	0.09	0.30	1.52	1.73	1.00	0.73
50th-Percentile Queue Length [ft/ln]	101.68	111.19	16.91	18.30	27.49	2.36	7.57	37.91	43.32	25.02	18.15
95th-Percentile Queue Length [veh/ln]	7.32	7.91	1.22	1.32	1.98	0.17	0.54	2.73	3.12	1.80	1.31
95th-Percentile Queue Length [ft/ln]	183.03	197.65	30.44	32.93	49.49	4.25	13.62	68.24	77.98	45.03	32.67

Movement, Approach, & Intersection Results

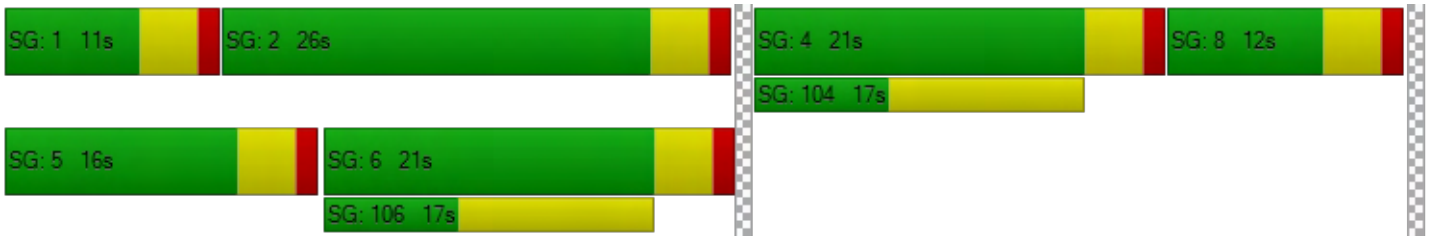
d_M, Delay for Movement [s/veh]	35.27	13.07	8.81	34.76	13.08	12.01	29.84	29.84	35.99	33.89	31.16	30.51
Movement LOS	D	B	A	C	B	B	C	C	D	C	C	C
d_A, Approach Delay [s/veh]	18.90			16.10			34.85			32.35		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	21.47											
Intersection LOS	C											
Intersection V/C	0.475											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	24.86	24.86	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.974	2.272	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	629	486	229	486
d_b, Bicycle Delay [s]	16.46	20.06	27.46	20.06
l_b,int, Bicycle LOS Score for Intersection	2.941	1.811	1.738	1.738
Bicycle LOS	C	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	67.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.060

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	576	537	0	0	536	681	0	0	0	224	2	127
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	19	22	0	0	0	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	576	546	0	0	555	703	0	0	0	224	2	131
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	156	147	0	0	150	190	0	0	0	61	1	35
Total Analysis Volume [veh/h]	622	590	0	0	600	760	0	0	0	242	2	142
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	40	92	0	0	52	0	0	0	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	110	110	110	110		110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	36	88	48	48		14	14
g / C, Green / Cycle	0.33	0.80	0.44	0.44		0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.36	0.17	0.12	0.50		0.14	0.09
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1715	1530
c, Capacity [veh/h]	561	2741	2138	667		219	195
d1, Uniform Delay [s]	37.00	2.67	19.92	31.01		47.98	46.14
k, delay calibration	0.50	0.50	0.50	0.50		0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	71.44	0.18	0.33	79.84		65.48	5.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.11	0.22	0.28	1.14		1.12	0.73
d, Delay for Lane Group [s/veh]	108.44	2.85	20.25	110.85		113.46	51.24
Lane Group LOS	F	A	C	F		F	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	25.30	0.98	3.18	30.96		9.94	4.00
50th-Percentile Queue Length [ft/ln]	632.38	24.43	79.44	774.10		248.56	99.96
95th-Percentile Queue Length [veh/ln]	35.86	1.76	5.72	43.95		15.81	7.20
95th-Percentile Queue Length [ft/ln]	896.45	43.98	143.00	1098.75		395.35	179.93

Movement, Approach, & Intersection Results

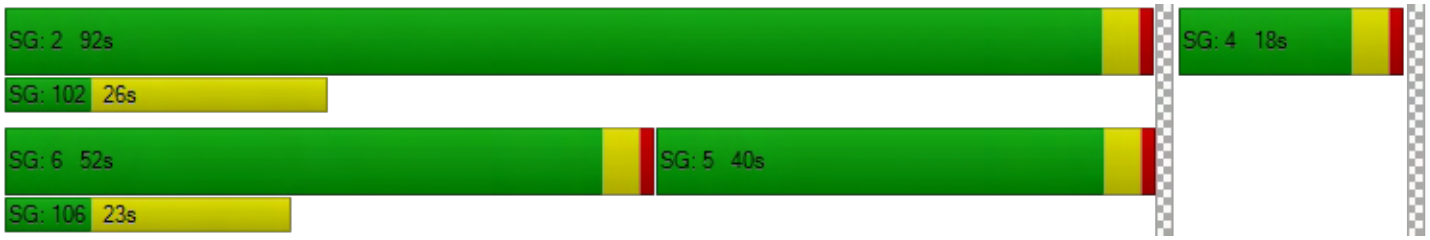
d_M, Delay for Movement [s/veh]	108.44	2.85	0.00	0.00	20.25	110.85	0.00	0.00	0.00	113.46	113.46	51.24
Movement LOS	F	A			C	F				F	F	D
d_A, Approach Delay [s/veh]	57.04			70.88			0.00			90.57		
Approach LOS	E			E			A			F		
d_I, Intersection Delay [s/veh]	67.78											
Intersection LOS	E											
Intersection V/C	1.060											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	44.55	44.55
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.782	1.913
Crosswalk LOS	F	F	C	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1600	873	0	255
d_b, Bicycle Delay [s]	2.20	17.47	55.00	41.89
l_b,int, Bicycle LOS Score for Intersection	2.560	2.308	4.132	2.197
Bicycle LOS	B	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	29.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.630

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	652	288	74	486	0	528	3	478	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	15	4	0	8	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	653	288	89	490	0	536	3	478	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	175	77	24	132	0	144	1	128	0	0	0
Total Analysis Volume [veh/h]	0	701	309	96	526	0	576	3	513	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	5.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	37	0	14	51	0	0	59	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	110	110	110	110	110	110	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	33	33	10	47	55	55	
g / C, Green / Cycle	0.30	0.30	0.09	0.43	0.50	0.50	
(v / s)_i Volume / Saturation Flow Rate	0.14	0.20	0.06	0.15	0.34	0.34	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1471	459	156	1464	857	765	
d1, Uniform Delay [s]	31.45	33.77	48.15	21.31	20.76	20.69	
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.11	7.68	16.88	0.69	4.24	4.64	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.48	0.67	0.62	0.36	0.68	0.67	
d, Delay for Lane Group [s/veh]	32.55	41.45	65.03	22.00	25.00	25.33	
Lane Group LOS	C	D	E	C	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	5.01	7.88	3.19	4.47	11.84	10.55	
50th-Percentile Queue Length [ft/ln]	125.27	197.01	79.83	111.73	296.12	263.80	
95th-Percentile Queue Length [veh/ln]	8.68	12.48	5.75	7.94	17.49	15.88	
95th-Percentile Queue Length [ft/ln]	217.04	312.10	143.69	198.40	437.23	396.98	

Movement, Approach, & Intersection Results

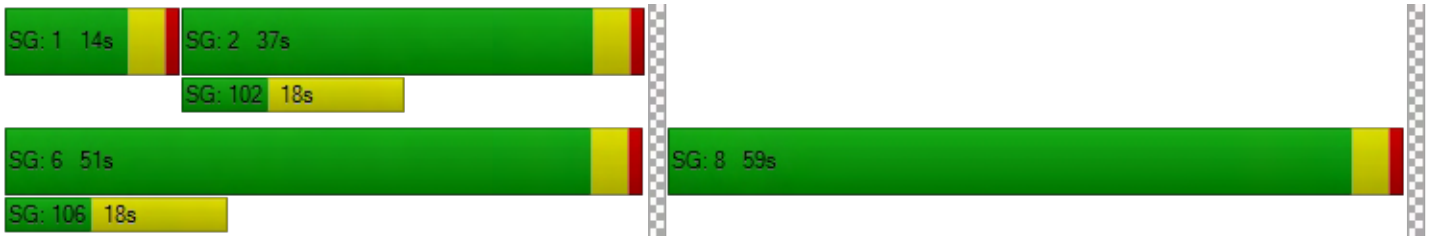
d_M, Delay for Movement [s/veh]	0.00	32.55	41.45	65.03	22.00	0.00	25.00	25.00	25.33	0.00	0.00	0.00
Movement LOS		C	D	E	C		C	C	C			
d_A, Approach Delay [s/veh]	35.28			28.64			25.16			0.00		
Approach LOS	D			C			C			A		
d_I, Intersection Delay [s/veh]	29.70											
Intersection LOS	C											
Intersection V/C	0.630											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	44.55	44.55
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.257	1.831
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	855	1000	0
d_b, Bicycle Delay [s]	26.95	18.04	13.75	55.00
l_b,int, Bicycle LOS Score for Intersection	2.115	2.073	3.361	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	87	39	25	211	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	26	0	14	0	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	4	0	26	0	101	39	25	230	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	7	0	27	10	7	63	0
Total Analysis Volume [veh/h]	0	0	0	4	0	28	0	110	41	26	250	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	No		
Number of Storage Spaces in Median	1	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	11.31	0.00	8.89	12.01	0.00	9.75	0.00	0.00	0.00	7.54	0.00	0.00
Movement LOS	B		A	B		A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.13	0.00	0.13	0.00	0.00	0.00	0.06	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.35	0.00	3.35	0.00	0.00	0.00	1.38	0.00	0.00
d_A, Approach Delay [s/veh]	10.10			10.03			0.00			0.71		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.13											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.047

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	0	0	141	250	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	27	19	14	4	0	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	19	14	145	250	13
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	5	4	39	68	4
Total Analysis Volume [veh/h]	29	21	15	158	272	14
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.08	9.80	7.83	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.08	0.03	0.02	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.67	2.10	0.82	0.41	0.00	0.00
d_A, Approach Delay [s/veh]	10.54		0.68		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.27					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	134	0	0	226	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	142	0	0	229	0	0	0	0	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	39	0	0	62	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	154	0	0	249	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	Yes
Number of Storage Spaces in Median	0	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.71	0.00	0.00	7.50	0.00	0.00	10.92	0.00	8.96	10.22	0.00	8.69
Movement LOS	A	A	A	A	A	A	B		A	B		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			9.94			9.46		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.372

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	56	111	62	19	183	24	9	67	18	132	170	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	3	8	15	8	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	111	62	19	183	27	17	82	26	132	177	14
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	31	18	5	52	8	5	23	7	37	50	4
Total Analysis Volume [veh/h]	67	126	70	22	208	31	19	93	30	150	201	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	520	581	520	559	625	495	531	590	517	557	566
Degree of Utilization, x	0.13	0.34	0.04	0.37	0.05	0.04	0.18	0.05	0.29	0.19	0.19

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.44	1.48	0.13	1.71	0.16	0.12	0.63	0.16	1.19	0.72	0.70
95th-Percentile Queue Length [ft]	11.01	37.05	3.31	42.81	3.91	2.99	15.75	4.01	29.87	17.92	17.58
Approach Delay [s/veh]	11.67		12.17			10.45			11.40		
Approach LOS	B		B			B			B		
Intersection Delay [s/veh]	11.53										
Intersection LOS	B										

Westgrove Apartments

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Report File: G:\...\PMEp_PH1.pdf

Scenario 2 Existing Plus Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.579	24.3	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	0.872	36.4	D
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.755	27.1	C
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.007	14.1	B
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.042	12.8	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	EB Left	0.000	12.5	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	NB Thru	0.999	34.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	103	250	169	63	519	19	9	109	247	136	62	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	38	4	0	0	0	0	0	26	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	103	250	207	67	519	19	9	109	247	162	62	48
Peak Hour Factor	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	68	56	18	141	5	2	30	67	44	17	13
Total Analysis Volume [veh/h]	112	272	225	73	564	21	10	118	268	176	67	52
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	20	0	13	21	0	0	11	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	22	22	5	21	21	13	13	9	9	9
g / C, Green / Cycle	0.09	0.33	0.33	0.08	0.32	0.32	0.20	0.20	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.07	0.15	0.15	0.04	0.16	0.01	0.07	0.18	0.10	0.04	0.03
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1793	1530	1714	1638	1530
c, Capacity [veh/h]	163	601	511	139	1096	489	362	309	237	226	211
d1, Uniform Delay [s]	28.58	17.06	16.98	28.79	18.08	15.32	22.40	25.22	27.01	25.27	25.09
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.01	2.45	2.74	3.05	1.73	0.17	0.59	7.40	4.56	0.72	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.69	0.45	0.44	0.53	0.51	0.04	0.35	0.87	0.74	0.30	0.25
d, Delay for Lane Group [s/veh]	33.59	19.51	19.72	31.84	19.81	15.48	22.99	32.62	31.57	25.99	25.69
Lane Group LOS	C	B	B	C	B	B	C	C	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.76	3.13	2.63	1.12	3.21	0.21	1.56	4.16	2.66	0.89	0.68
50th-Percentile Queue Length [ft/ln]	44.09	78.18	65.67	27.88	80.36	5.21	38.88	104.03	66.58	22.17	17.09
95th-Percentile Queue Length [veh/ln]	3.17	5.63	4.73	2.01	5.79	0.38	2.80	7.49	4.79	1.60	1.23
95th-Percentile Queue Length [ft/ln]	79.36	140.72	118.21	50.19	144.65	9.39	69.99	187.26	119.85	39.91	30.77

Movement, Approach, & Intersection Results

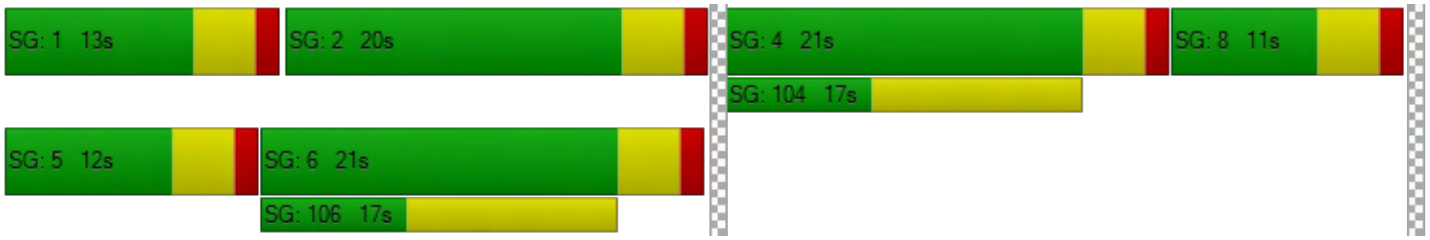
d_M, Delay for Movement [s/veh]	33.59	19.51	19.72	31.84	19.81	15.48	22.99	22.99	32.62	31.57	25.99	25.69
Movement LOS	C	B	B	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	22.17			21.01			29.51			29.27		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.33											
Intersection LOS	C											
Intersection V/C	0.579											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	22.43	22.43	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	2.992	2.331	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	492	523	215	523
d_b, Bicycle Delay [s]	18.47	17.72	25.88	17.72
I_b,int, Bicycle LOS Score for Intersection	2.564	2.102	2.213	1.803
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.872

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	454	689	0	0	179	353	0	0	0	343	9	375
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	27	0	0	12	14	0	0	0	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	454	716	0	0	191	367	0	0	0	343	9	386
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	122	192	0	0	51	99	0	0	0	92	2	104
Total Analysis Volume [veh/h]	488	769	0	0	205	394	0	0	0	369	10	415
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	31	60	0	0	29	0	0	0	0	0	30	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	90	90	90	90		90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	27	56	25	25		26	26
g / C, Green / Cycle	0.30	0.62	0.28	0.28		0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.28	0.22	0.04	0.26		0.22	0.27
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1716	1530
c, Capacity [veh/h]	514	2135	1366	426		495	441
d1, Uniform Delay [s]	30.84	8.25	24.45	31.55		29.28	31.31
k, delay calibration	0.34	0.50	0.50	0.50		0.20	0.31
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	22.58	0.47	0.23	28.18		4.65	22.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	0.95	0.36	0.15	0.92		0.77	0.94
d, Delay for Lane Group [s/veh]	53.42	8.72	24.68	59.73		33.93	53.65
Lane Group LOS	D	A	C	E		C	D
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	12.74	3.04	1.06	11.02		7.90	11.23
50th-Percentile Queue Length [ft/ln]	318.39	76.12	26.54	275.41		197.39	280.81
95th-Percentile Queue Length [veh/ln]	18.59	5.48	1.91	16.46		12.50	16.73
95th-Percentile Queue Length [ft/ln]	464.70	137.02	47.76	411.49		312.60	418.22

Movement, Approach, & Intersection Results

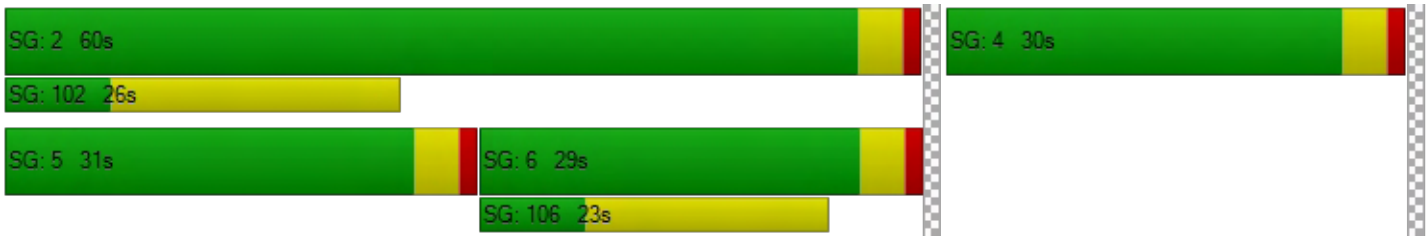
d_M, Delay for Movement [s/veh]	53.42	8.72	0.00	0.00	24.68	59.73	0.00	0.00	0.00	33.93	33.93	53.65
Movement LOS	D	A			C	E				C	C	D
d_A, Approach Delay [s/veh]	26.08			47.74			0.00			44.24		
Approach LOS	C			D			A			D		
d_I, Intersection Delay [s/veh]	36.41											
Intersection LOS	D											
Intersection V/C	0.872											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.293	2.101
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1244	556	0	578
d_b, Bicycle Delay [s]	6.42	23.47	45.00	22.76
l_b,int, Bicycle LOS Score for Intersection	2.597	1.889	4.132	2.870
Bicycle LOS	B	A	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	27.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.755

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	822	436	259	505	0	338	3	361	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	10	2	0	23	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	826	436	269	507	0	361	3	361	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	215	113	70	132	0	94	1	94	0	0	0
Total Analysis Volume [veh/h]	0	858	453	280	527	0	375	3	375	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	58.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	37	0	22	59	0	0	31	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	90	90	90	90	90	90	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	37	37	16	58	24	24	
g / C, Green / Cycle	0.41	0.41	0.18	0.64	0.27	0.27	
(v / s)_i Volume / Saturation Flow Rate	0.17	0.30	0.16	0.15	0.22	0.25	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	2028	633	314	2198	463	413	
d1, Uniform Delay [s]	18.77	22.00	35.89	6.84	30.79	31.80	
k, delay calibration	0.50	0.50	0.11	0.50	0.20	0.26	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.65	6.81	8.60	0.26	6.51	16.00	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.42	0.72	0.89	0.24	0.82	0.91	
d, Delay for Lane Group [s/veh]	19.42	28.80	44.48	7.10	37.30	47.80	
Lane Group LOS	B	C	D	A	D	D	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	3.97	8.33	6.39	1.76	8.29	9.47	
50th-Percentile Queue Length [ft/ln]	99.16	208.33	159.84	44.01	207.34	236.85	
95th-Percentile Queue Length [veh/ln]	7.14	13.07	10.54	3.17	13.02	14.52	
95th-Percentile Queue Length [ft/ln]	178.49	326.69	263.51	79.21	325.42	363.05	

Movement, Approach, & Intersection Results

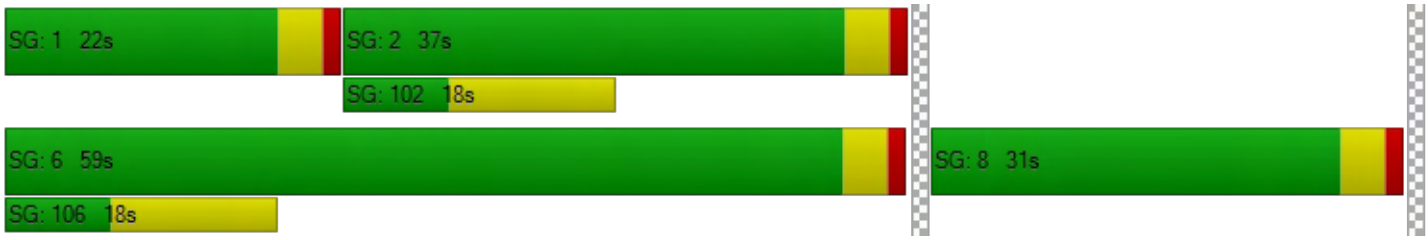
d_M, Delay for Movement [s/veh]	0.00	19.42	28.80	44.48	7.10	0.00	37.30	37.30	47.80	0.00	0.00	0.00
Movement LOS		B	C	D	A		D	D	D			
d_A, Approach Delay [s/veh]	22.66			20.07			42.53			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	27.14											
Intersection LOS	C											
Intersection V/C	0.755											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.081	2.140
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	1222	600	0
d_b, Bicycle Delay [s]	18.05	6.81	22.05	45.00
l_b,int, Bicycle LOS Score for Intersection	2.281	2.225	2.802	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	283	1	2	231	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	3	0	16	0	42	0	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	3	0	16	0	325	1	2	243	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	4	0	88	0	1	66	0
Total Analysis Volume [veh/h]	0	0	0	3	0	17	0	353	1	2	264	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	No		
Number of Storage Spaces in Median	1	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.26	0.00	10.18	14.12	0.00	9.78	0.00	0.00	0.00	7.97	0.00	0.00
Movement LOS	B		B	B		A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.26	0.00	2.26	0.00	0.00	0.00	0.12	0.00	0.00
d_A, Approach Delay [s/veh]	11.22			10.43			0.00			0.06		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.35											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	0	0	341	244	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	12	42	3	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	12	42	344	244	35
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	3	11	93	66	10
Total Analysis Volume [veh/h]	20	13	46	374	265	38
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.02	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.84	9.70	7.94	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.05	0.10	0.05	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.26	1.27	2.56	1.28	0.00	0.00
d_A, Approach Delay [s/veh]	11.61		0.87		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.99					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	308	0	0	271	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	8	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	313	0	0	279	0	0	0	0	0	0	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	85	0	0	76	0	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	340	0	0	303	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	Yes
Number of Storage Spaces in Median	0	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.84	0.00	0.00	7.93	0.00	0.00	12.52	0.00	9.12	11.68	0.00	9.23
Movement LOS	A	A	A	A	A	A	B		A	B		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00			0.00			10.82			10.46		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	0.00											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	34.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.999

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	39	266	185	61	203	7	24	322	69	137	153	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	8	5	10	5	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	266	185	61	203	15	29	332	74	137	172	18
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	72	50	16	55	4	8	90	20	37	46	5
Total Analysis Volume [veh/h]	51	287	200	66	219	16	31	359	80	148	186	19
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	444	487	409	432	467	426	450	488	402	424	430
Degree of Utilization, x	0.11	1.00	0.16	0.51	0.03	0.07	0.80	0.16	0.37	0.24	0.24

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.39	13.47	0.57	2.79	0.11	0.23	7.25	0.58	1.66	0.94	0.92
95th-Percentile Queue Length [ft]	9.67	336.74	14.21	69.81	2.65	5.87	181.22	14.52	41.54	23.38	22.97
Approach Delay [s/veh]	62.09		17.50			29.94			15.04		
Approach LOS	F		C			D			C		
Intersection Delay [s/veh]	34.93										
Intersection LOS	D										

OPENING YEAR (2020) WITHOUT PROJECT

Westgrove Apartments

Vistro File: G:\...\AMOY_PH1.vistro
Report File: G:\...\AMOY_PH1.pdf

Scenario 1 Opening Year (2020) Without Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.576	25.5	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	1.202	102.0	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.745	35.9	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.000	11.8	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.410	12.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	242	508	99	45	256	11	5	16	90	75	68	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	72	94	12	8	66	9	3	11	27	42	13	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	602	111	53	322	20	8	27	117	117	81	53
Peak Hour Factor	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	153	28	13	82	5	2	7	30	30	21	13
Total Analysis Volume [veh/h]	319	611	113	54	327	20	8	27	119	119	82	54
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	21	31	0	11	21	0	0	17	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	43	43	5	32	32	8	8	8	8	8
g / C, Green / Cycle	0.21	0.54	0.54	0.06	0.39	0.39	0.10	0.10	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.19	0.34	0.07	0.03	0.10	0.01	0.02	0.08	0.07	0.05	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1780	1530	1714	1638	1530
c, Capacity [veh/h]	357	967	822	108	1342	599	182	156	169	161	151
d1, Uniform Delay [s]	30.89	13.01	9.28	36.38	16.41	15.04	32.97	35.05	35.04	34.32	33.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.86	3.14	0.35	3.58	0.43	0.10	0.51	7.38	5.31	2.47	1.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.63	0.14	0.50	0.24	0.03	0.19	0.76	0.71	0.51	0.36
d, Delay for Lane Group [s/veh]	38.75	16.15	9.63	39.96	16.84	15.15	33.48	42.43	40.34	36.79	35.23
Lane Group LOS	D	B	A	D	B	B	C	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.29	7.04	0.90	1.07	1.88	0.22	0.61	2.44	2.36	1.54	0.98
50th-Percentile Queue Length [ft/ln]	157.33	175.89	22.41	26.80	46.90	5.46	15.30	61.01	59.01	38.40	24.61
95th-Percentile Queue Length [veh/ln]	10.41	11.39	1.61	1.93	3.38	0.39	1.10	4.39	4.25	2.76	1.77
95th-Percentile Queue Length [ft/ln]	260.19	284.64	40.34	48.25	84.42	9.84	27.54	109.82	106.22	69.12	44.30

Movement, Approach, & Intersection Results

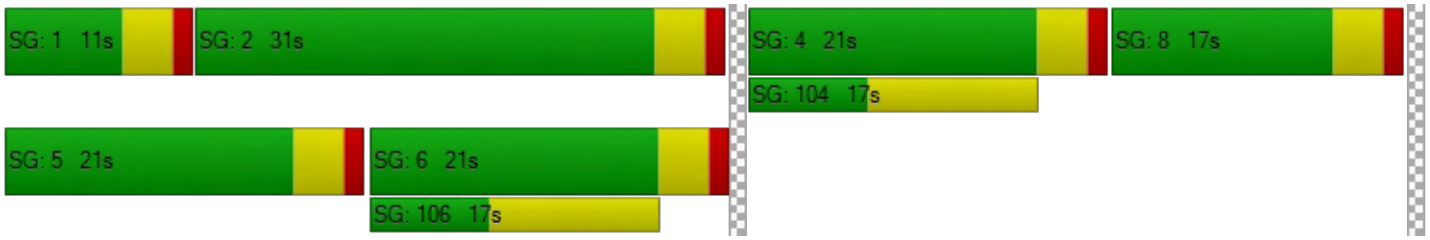
d_M, Delay for Movement [s/veh]	38.75	16.15	9.63	39.96	16.84	15.15	33.48	33.48	42.43	40.34	36.79	35.23
Movement LOS	D	B	A	D	B	B	C	C	D	D	D	D
d_A, Approach Delay [s/veh]	22.36			19.87			40.40			38.12		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	25.49											
Intersection LOS	C											
Intersection V/C	0.576											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	29.76	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.017	2.335	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	425	325	425
d_b, Bicycle Delay [s]	17.56	24.81	28.06	24.81
l_b,int, Bicycle LOS Score for Intersection	3.281	1.890	1.814	1.770
Bicycle LOS	C	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	102.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.202

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	593	564	0	0	552	701	0	0	0	240	2	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	143	0	0	80	55	0	0	0	72	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	655	707	0	0	632	756	0	0	0	312	2	171
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	191	0	0	171	204	0	0	0	84	1	46
Total Analysis Volume [veh/h]	708	764	0	0	683	817	0	0	0	337	2	185
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	45	101	0	0	56	0	0	0	0	0	24	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	125	125	125	125		125	125
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	41	97	52	52		20	20
g / C, Green / Cycle	0.33	0.78	0.42	0.42		0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.41	0.22	0.14	0.53		0.20	0.12
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1715	1530
c, Capacity [veh/h]	562	2659	2040	637		275	245
d1, Uniform Delay [s]	42.00	4.04	24.75	36.48		52.47	50.12
k, delay calibration	0.50	0.50	0.50	0.50		0.32	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	131.02	0.27	0.44	139.27		124.11	4.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.26	0.29	0.33	1.28		1.23	0.75
d, Delay for Lane Group [s/veh]	173.02	4.32	25.20	175.76		176.57	54.81
Lane Group LOS	F	A	C	F		F	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	36.96	2.17	4.50	42.84		18.07	5.85
50th-Percentile Queue Length [ft/ln]	924.08	54.32	112.58	1071.03		451.66	146.20
95th-Percentile Queue Length [veh/ln]	53.95	3.91	7.98	62.95		27.53	9.81
95th-Percentile Queue Length [ft/ln]	1348.73	97.78	199.59	1573.82		688.22	245.35

Movement, Approach, & Intersection Results

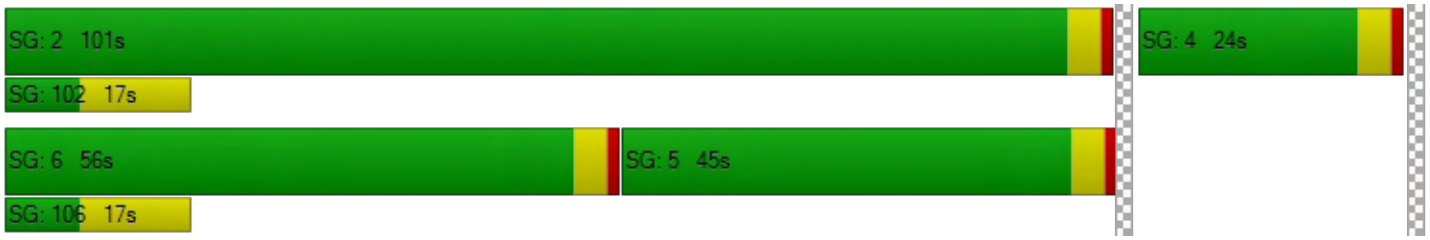
d_M, Delay for Movement [s/veh]	173.02	4.32	0.00	0.00	25.20	175.76	0.00	0.00	0.00	176.57	176.57	54.81
Movement LOS	F	A			C	F				F	F	D
d_A, Approach Delay [s/veh]	85.46			107.20			0.00			133.58		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	102.00											
Intersection LOS	F											
Intersection V/C	1.202											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.928	1.986
Crosswalk LOS	F	F	C	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1552	832	0	320
d_b, Bicycle Delay [s]	3.14	21.32	62.50	44.10
l_b,int, Bicycle LOS Score for Intersection	2.774	2.385	4.132	2.424
Bicycle LOS	C	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	678	296	81	512	0	552	3	492	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	132	71	13	139	0	73	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	810	367	94	651	0	625	3	549	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	218	99	25	175	0	168	1	147	0	0	0
Total Analysis Volume [veh/h]	0	870	394	101	699	0	671	3	590	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	1.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	45	0	14	59	0	0	66	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	125	125	125	125	125	125	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	52	52	9	65	52	52	
g / C, Green / Cycle	0.41	0.41	0.07	0.52	0.42	0.42	
(v / s)_i Volume / Saturation Flow Rate	0.18	0.26	0.06	0.20	0.39	0.39	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	2024	632	124	1772	718	641	
d1, Uniform Delay [s]	26.18	29.01	57.13	18.31	34.74	34.31	
k, delay calibration	0.50	0.50	0.11	0.50	0.32	0.31	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.67	4.60	12.19	0.66	15.50	14.22	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.43	0.62	0.82	0.39	0.94	0.92	
d, Delay for Lane Group [s/veh]	26.85	33.61	69.32	18.97	50.23	48.53	
Lane Group LOS	C	C	E	B	D	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	6.06	9.73	3.49	5.96	22.27	19.12	
50th-Percentile Queue Length [ft/ln]	151.41	243.37	87.33	149.08	556.81	477.92	
95th-Percentile Queue Length [veh/ln]	10.09	14.85	6.29	9.97	30.01	26.29	
95th-Percentile Queue Length [ft/ln]	252.31	371.29	157.19	249.20	750.30	657.18	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	26.85	33.61	69.32	18.97	0.00	50.23	50.23	48.53	0.00	0.00	0.00
Movement LOS		C	C	E	B		D	D	D			
d_A, Approach Delay [s/veh]	28.96			25.33			49.44			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	35.86											
Intersection LOS	D											
Intersection V/C	0.745											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.347	1.925
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	656	880	992	0
d_b, Bicycle Delay [s]	28.22	19.60	15.88	62.50
l_b,int, Bicycle LOS Score for Intersection	2.255	2.220	3.645	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	110	40	26	220	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	31	0	0	61	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	141	40	26	281	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	38	11	7	76	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	153	42	27	305	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	11.76	0.00	9.12	11.81	0.00	9.87	0.00	0.00	0.00	7.64	0.00	0.00
Movement LOS	B		A	B		A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	0.71	0.00
d_A, Approach Delay [s/veh]	10.44			10.84			0.00			0.62		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.39											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.410

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	58	120	64	23	188	29	12	79	19	136	188	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	27	7	35	14	15	2	2	26	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	127	64	50	195	64	26	94	21	138	214	25
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	36	18	14	55	18	7	27	6	39	61	7
Total Analysis Volume [veh/h]	66	144	73	57	221	73	30	107	24	157	243	28
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	510	565	503	539	600	486	519	574	499	535	546
Degree of Utilization, x	0.13	0.38	0.11	0.41	0.12	0.06	0.21	0.04	0.31	0.25	0.25

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.44	1.80	0.38	1.98	0.41	0.20	0.77	0.13	1.34	1.00	0.97
95th-Percentile Queue Length [ft]	11.07	44.91	9.51	49.56	10.33	4.92	19.20	3.27	33.42	24.93	24.26
Approach Delay [s/veh]	12.48		12.50			10.95			12.17		
Approach LOS	B		B			B			B		
Intersection Delay [s/veh]	12.17										
Intersection LOS	B										

Westgrove Apartments

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Report File: G:\...\PMOY_PH1.pdf

Scenario 1 Opening Year (2020) Without Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.738	31.9	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	1.016	68.9	E
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.912	44.4	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.000	12.9	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	NB Thru	1.060	41.1	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	106	261	189	67	546	20	9	114	257	157	64	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	110	44	9	133	4	9	16	72	26	14	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	371	233	76	679	24	18	130	329	183	78	60
Peak Hour Factor	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	101	63	21	184	7	5	35	89	50	21	16
Total Analysis Volume [veh/h]	153	403	253	83	738	26	20	141	357	199	85	65
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	13	15	0	19	21	0	0	15	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	21	21	6	18	18	18	18	10	10	10
g / C, Green / Cycle	0.11	0.29	0.29	0.08	0.26	0.26	0.25	0.25	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.09	0.22	0.17	0.05	0.22	0.02	0.09	0.23	0.12	0.05	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1789	1530	1714	1638	1530
c, Capacity [veh/h]	190	529	450	138	904	404	446	382	253	242	226
d1, Uniform Delay [s]	30.42	22.49	20.91	31.12	24.18	19.30	21.68	25.73	28.77	26.82	26.56
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.88	9.94	5.01	4.18	8.05	0.31	0.49	11.45	5.33	0.87	0.69
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.76	0.56	0.60	0.82	0.06	0.36	0.94	0.79	0.35	0.29
d, Delay for Lane Group [s/veh]	38.29	32.42	25.92	35.30	32.24	19.61	22.17	37.19	34.10	27.69	27.25
Lane Group LOS	D	C	C	D	C	B	C	D	C	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.72	6.75	3.71	1.41	6.08	0.32	2.01	6.34	3.30	1.22	0.93
50th-Percentile Queue Length [ft/ln]	68.06	168.77	92.87	35.23	151.96	7.98	50.21	158.47	82.61	30.62	23.17
95th-Percentile Queue Length [veh/ln]	4.90	11.01	6.69	2.54	10.12	0.57	3.61	10.47	5.95	2.20	1.67
95th-Percentile Queue Length [ft/ln]	122.51	275.30	167.17	63.42	253.05	14.37	90.37	261.70	148.71	55.12	41.71

Movement, Approach, & Intersection Results

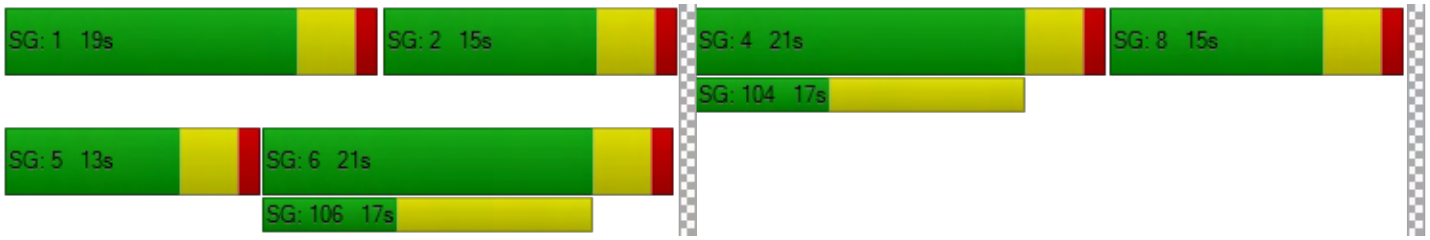
d_M, Delay for Movement [s/veh]	38.29	32.42	25.92	35.30	32.24	19.61	22.17	22.17	37.19	34.10	27.69	27.25
Movement LOS	D	C	C	D	C	B	C	C	D	C	C	C
d_A, Approach Delay [s/veh]	31.50			32.15			32.52			31.26		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	31.90											
Intersection LOS	C											
Intersection V/C	0.738											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	24.86	24.86	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.052	2.403	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	314	486	314	486
d_b, Bicycle Delay [s]	24.86	20.06	24.86	20.06
l_b,int, Bicycle LOS Score for Intersection	2.894	2.258	2.414	1.848
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	68.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.016

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	473	722	0	0	204	388	0	0	0	356	9	386
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	172	0	0	148	83	0	0	0	103	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	551	894	0	0	352	471	0	0	0	459	9	403
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	148	240	0	0	95	127	0	0	0	123	2	108
Total Analysis Volume [veh/h]	592	960	0	0	378	506	0	0	0	493	10	433
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	46	90	0	0	44	0	0	0	0	0	40	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	130	130	130	130		130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	42	86	40	40		36	36
g / C, Green / Cycle	0.32	0.66	0.31	0.31		0.28	0.28
(v / s)_i Volume / Saturation Flow Rate	0.35	0.28	0.08	0.33		0.29	0.28
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1716	1530
c, Capacity [veh/h]	553	2267	1511	471		475	424
d1, Uniform Delay [s]	44.01	10.34	33.70	44.96		46.98	46.98
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.47
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	58.47	0.58	0.40	62.54		57.64	48.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.07	0.42	0.25	1.07		1.06	1.02
d, Delay for Lane Group [s/veh]	102.48	10.92	34.10	107.50		104.62	95.27
Lane Group LOS	F	B	C	F		F	F
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	26.03	5.95	2.98	22.78		22.87	19.29
50th-Percentile Queue Length [ft/ln]	650.85	148.86	74.51	569.60		571.73	482.26
95th-Percentile Queue Length [veh/ln]	35.99	9.96	5.36	32.04		31.83	26.86
95th-Percentile Queue Length [ft/ln]	899.80	248.90	134.11	800.94		795.73	671.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	102.48	10.92	0.00	0.00	34.10	107.50	0.00	0.00	0.00	104.62	104.62	95.27
Movement LOS	F	B			C	F				F	F	F
d_A, Approach Delay [s/veh]	45.85			76.11			0.00			100.29		
Approach LOS	D			E			A			F		
d_I, Intersection Delay [s/veh]	68.90											
Intersection LOS	E											
Intersection V/C	1.016											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	54.47	54.47
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.521	2.189
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1323	615	0	554
d_b, Bicycle Delay [s]	7.45	31.15	65.00	33.98
l_b,int, Bicycle LOS Score for Intersection	2.840	2.046	4.132	3.104
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.912

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	860	450	267	533	0	350	3	377	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	188	100	35	216	0	62	0	83	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1048	550	302	749	0	412	3	460	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	272	143	78	195	0	107	1	120	0	0	0
Total Analysis Volume [veh/h]	0	1089	572	314	778	0	428	3	478	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	88.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	55	0	29	84	0	0	46	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	130	130	130	130	130	130	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	51	51	25	80	42	42	
g / C, Green / Cycle	0.39	0.39	0.19	0.62	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.37	0.18	0.23	0.25	0.31	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1926	601	330	2111	553	493	
d1, Uniform Delay [s]	30.78	38.23	51.87	12.39	39.82	43.36	
k, delay calibration	0.50	0.50	0.30	0.50	0.30	0.44	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.21	26.54	28.20	0.50	6.43	31.03	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.57	0.95	0.95	0.37	0.78	0.97	
d, Delay for Lane Group [s/veh]	31.98	64.78	80.07	12.89	46.26	74.39	
Lane Group LOS	C	E	F	B	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.78	21.20	12.42	5.33	13.40	19.24	
50th-Percentile Queue Length [ft/ln]	219.57	530.09	310.49	133.31	335.03	481.05	
95th-Percentile Queue Length [veh/ln]	13.64	28.76	18.20	9.12	19.41	26.44	
95th-Percentile Queue Length [ft/ln]	341.07	718.89	454.98	227.98	485.13	660.90	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	31.98	64.78	80.07	12.89	0.00	46.26	46.26	74.39	0.00	0.00	0.00
Movement LOS		C	E	F	B		D	D	E			
d_A, Approach Delay [s/veh]	43.28			32.21			61.05			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	44.39											
Intersection LOS	D											
Intersection V/C	0.912											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	54.47	54.47
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.176	2.308
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	785	1231	646	0
d_b, Bicycle Delay [s]	24.00	9.62	29.78	65.00
l_b,int, Bicycle LOS Score for Intersection	2.473	2.461	3.059	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	310	1	2	238	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	69	0	0	50	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	379	1	2	288	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	103	0	1	78	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	412	1	2	313	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.93	0.00	10.59	12.94	0.00	9.92	0.00	0.00	0.00	8.12	0.00	0.00
Movement LOS	B		B	B		A		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.00
d_A, Approach Delay [s/veh]	11.76			11.43			0.00			0.05		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.02											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	41.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.060

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	45	282	190	68	222	10	29	348	73	141	176	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	8	1	16	7	22	50	19	0	1	26	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	290	191	84	229	32	79	367	73	142	202	47
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	78	52	23	62	9	21	99	20	38	55	13
Total Analysis Volume [veh/h]	51	313	206	91	247	35	85	397	79	153	218	51
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	448	519	405	426	459	424	447	483	396	417	429
Degree of Utilization, x	0.11	1.06	0.22	0.58	0.08	0.20	0.89	0.16	0.39	0.32	0.31

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.38	15.90	0.85	3.58	0.25	0.74	9.47	0.58	1.78	1.38	1.32
95th-Percentile Queue Length [ft]	9.55	397.38	21.30	89.43	6.17	18.48	236.75	14.47	44.56	34.40	33.12
Approach Delay [s/veh]	77.69		19.22			37.37			15.96		
Approach LOS	F		C			E			C		
Intersection Delay [s/veh]	41.10										
Intersection LOS	E										

OPENING YEAR (2020) WITH PROJECT

Westgrove Apartments

Vistro File: G:\...\AMOY_PH1.vistro
Report File: G:\...\AMOYp_PH1.pdf

Scenario 2 Opening Year (2020) With Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.603	26.4	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	NB Left	1.219	105.6	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.761	36.4	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.008	12.3	B
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.053	12.0	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.083	11.1	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.413	12.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.603

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	242	508	99	45	256	11	5	16	90	75	68	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	72	94	25	9	66	9	3	11	27	83	13	10
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	602	124	54	322	20	8	27	117	158	81	57
Peak Hour Factor	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	153	31	14	82	5	2	7	30	40	21	14
Total Analysis Volume [veh/h]	319	611	126	55	327	20	8	27	119	160	82	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	21	31	0	11	21	0	0	17	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	17	41	41	5	30	30	8	8	10	10	10
g / C, Green / Cycle	0.21	0.52	0.52	0.06	0.37	0.37	0.10	0.10	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.19	0.34	0.08	0.03	0.10	0.01	0.02	0.08	0.09	0.05	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1780	1530	1714	1638	1530
c, Capacity [veh/h]	356	927	788	107	1267	566	180	155	208	199	186
d1, Uniform Delay [s]	30.90	14.28	10.28	36.37	17.59	16.12	32.99	35.07	34.09	32.54	32.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.07	3.67	0.43	3.75	0.49	0.12	0.52	7.69	5.85	1.36	0.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.66	0.16	0.51	0.26	0.04	0.19	0.77	0.77	0.41	0.31
d, Delay for Lane Group [s/veh]	38.97	17.95	10.71	40.11	18.08	16.24	33.51	42.76	39.94	33.90	33.07
Lane Group LOS	D	B	B	D	B	B	C	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.31	7.61	1.08	1.09	1.97	0.23	0.61	2.45	3.16	1.45	1.01
50th-Percentile Queue Length [ft/ln]	157.74	190.21	27.10	27.36	49.29	5.74	15.31	61.27	78.96	36.36	25.30
95th-Percentile Queue Length [veh/ln]	10.43	12.13	1.95	1.97	3.55	0.41	1.10	4.41	5.68	2.62	1.82
95th-Percentile Queue Length [ft/ln]	260.73	303.30	48.79	49.24	88.73	10.33	27.56	110.28	142.12	65.45	45.54

Movement, Approach, & Intersection Results

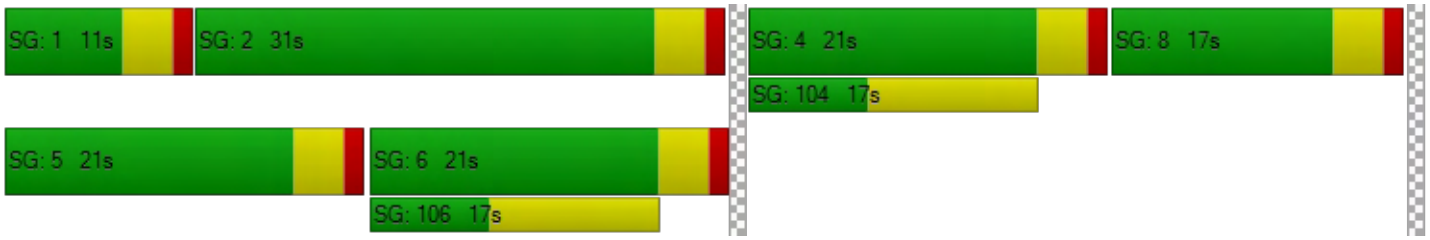
d_M, Delay for Movement [s/veh]	38.97	17.95	10.71	40.11	18.08	16.24	33.51	33.51	42.76	39.94	33.90	33.07
Movement LOS	D	B	B	D	B	B	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	23.44			21.00			40.65			36.96		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	26.43											
Intersection LOS	C											
Intersection V/C	0.603											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	29.76	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.018	2.335	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	675	425	325	425
d_b, Bicycle Delay [s]	17.56	24.81	28.06	24.81
I_b,int, Bicycle LOS Score for Intersection	3.302	1.891	1.814	1.807
Bicycle LOS	C	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	105.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.219

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	593	564	0	0	552	701	0	0	0	240	2	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	152	0	0	99	77	0	0	0	72	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	655	716	0	0	651	778	0	0	0	312	2	175
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	193	0	0	176	210	0	0	0	84	1	47
Total Analysis Volume [veh/h]	708	774	0	0	703	841	0	0	0	337	2	189
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	44	101	0	0	57	0	0	0	0	0	24	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	125	125	125	125		125	125
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	40	97	53	53		20	20
g / C, Green / Cycle	0.32	0.78	0.42	0.42		0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.41	0.23	0.14	0.55		0.20	0.12
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1715	1530
c, Capacity [veh/h]	548	2659	2079	649		275	245
d1, Uniform Delay [s]	42.50	4.06	24.20	35.99		52.47	50.27
k, delay calibration	0.50	0.50	0.50	0.50		0.32	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	144.40	0.28	0.44	144.61		124.11	5.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.29	0.29	0.34	1.30		1.23	0.77
d, Delay for Lane Group [s/veh]	186.90	4.34	24.64	180.60		176.57	55.36
Lane Group LOS	F	A	C	F		F	E
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	38.14	2.21	4.58	44.56		18.07	6.01
50th-Percentile Queue Length [ft/ln]	953.59	55.25	114.50	1114.03		451.66	150.31
95th-Percentile Queue Length [veh/ln]	56.09	3.98	8.09	65.66		27.53	10.03
95th-Percentile Queue Length [ft/ln]	1402.22	99.44	202.24	1641.38		688.22	250.84

Movement, Approach, & Intersection Results

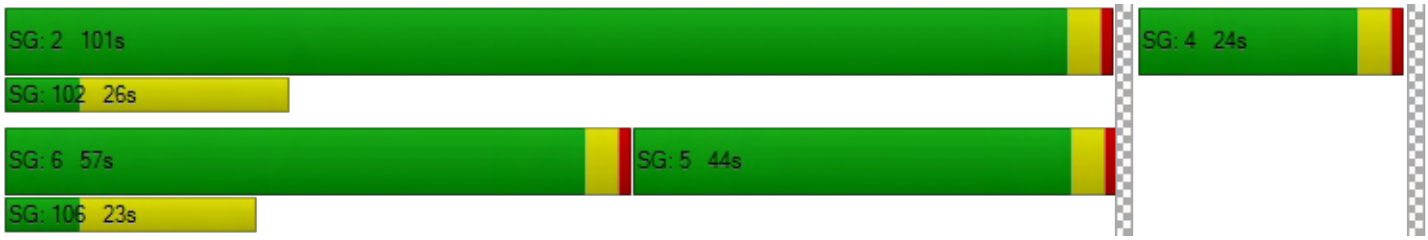
d_M, Delay for Movement [s/veh]	186.90	4.34	0.00	0.00	24.64	180.60	0.00	0.00	0.00	176.57	176.57	55.36
Movement LOS	F	A			C	F				F	F	E
d_A, Approach Delay [s/veh]	91.55			109.59			0.00			133.19		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	105.57											
Intersection LOS	F											
Intersection V/C	1.219											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.951	1.988
Crosswalk LOS	F	F	C	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1552	848	0	320
d_b, Bicycle Delay [s]	3.14	20.74	62.50	44.10
l_b,int, Bicycle LOS Score for Intersection	2.782	2.409	4.132	2.431
Bicycle LOS	C	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.761

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	678	296	81	512	0	552	3	492	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	133	71	28	143	0	81	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	811	367	109	655	0	633	3	549	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	218	99	29	176	0	170	1	147	0	0	0
Total Analysis Volume [veh/h]	0	871	394	117	704	0	680	3	590	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	2.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	44	0	15	59	0	0	66	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	125	125	125	125	125	125	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	50	50	10	64	53	53	
g / C, Green / Cycle	0.40	0.40	0.08	0.51	0.42	0.42	
(v / s)_i Volume / Saturation Flow Rate	0.18	0.26	0.07	0.21	0.40	0.39	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1952	609	141	1755	727	649	
d1, Uniform Delay [s]	27.52	30.48	56.48	18.71	34.46	33.74	
k, delay calibration	0.50	0.50	0.11	0.50	0.33	0.31	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.74	5.24	11.85	0.69	15.87	12.98	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.45	0.65	0.83	0.40	0.94	0.91	
d, Delay for Lane Group [s/veh]	28.26	35.72	68.33	19.40	50.33	46.73	
Lane Group LOS	C	D	E	B	D	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	6.25	10.09	4.02	6.09	22.62	18.76	
50th-Percentile Queue Length [ft/ln]	156.36	252.15	100.41	152.36	565.45	469.06	
95th-Percentile Queue Length [veh/ln]	10.36	15.29	7.23	10.14	30.42	25.87	
95th-Percentile Queue Length [ft/ln]	258.89	382.36	180.74	253.58	760.44	646.65	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	28.26	35.72	68.33	19.40	0.00	50.33	50.33	46.73	0.00	0.00	0.00
Movement LOS		C	D	E	B		D	D	D			
d_A, Approach Delay [s/veh]	30.58			26.37			48.66			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	36.40											
Intersection LOS	D											
Intersection V/C	0.761											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.351	1.940
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	640	880	992	0
d_b, Bicycle Delay [s]	28.90	19.60	15.88	62.50
l_b,int, Bicycle LOS Score for Intersection	2.255	2.237	3.660	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	110	40	26	220	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	26	0	45	0	0	80	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	4	0	26	0	155	40	26	300	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	7	0	42	11	7	82	0
Total Analysis Volume [veh/h]	0	0	0	4	0	28	0	168	42	27	326	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	12.23	0.00	9.20	12.31	0.00	10.26	0.00	0.00	0.00	7.68	0.00	0.00
Movement LOS	B		A	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.00	0.00	0.06	0.03	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.67	0.00	3.67	0.00	0.00	0.00	1.45	0.72	0.00
d_A, Approach Delay [s/veh]	10.71			10.52			0.00			0.59		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.91											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	0	0	160	275	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	27	19	14	35	61	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	19	14	195	336	13
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	5	4	53	91	4
Total Analysis Volume [veh/h]	29	21	15	212	365	14
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.98	10.48	8.06	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.10	0.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.21	2.39	0.96	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.35		0.53		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.05					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.083

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	150	0	0	240	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	17	14	4	6	0	0	0	0	50	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	167	14	4	246	0	0	0	0	50	0	14
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	45	4	1	67	0	0	0	0	14	0	4
Total Analysis Volume [veh/h]	0	182	15	4	267	0	0	0	0	54	0	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	Yes
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.02
d_M, Delay for Movement [s/veh]	7.75	0.00	0.00	7.60	0.00	0.00	10.94	0.00	9.01	11.10	0.00	9.38
Movement LOS	A	A	A	A	A	A	B		A	B		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	8.20	0.00	8.20
d_A, Approach Delay [s/veh]	0.00			0.11			9.98			10.73		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	1.43											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.413

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	58	120	64	23	188	29	12	79	19	136	188	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	7	0	27	7	38	22	30	10	2	33	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	127	64	50	195	67	34	109	29	138	221	25
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	36	18	14	55	19	10	31	8	39	63	7
Total Analysis Volume [veh/h]	69	144	73	57	221	76	39	124	33	157	251	28
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	510	564	501	536	594	485	518	572	495	531	542
Degree of Utilization, x	0.14	0.38	0.11	0.41	0.13	0.08	0.24	0.06	0.32	0.26	0.26

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.47	1.80	0.38	2.00	0.44	0.26	0.93	0.18	1.35	1.05	1.02
95th-Percentile Queue Length [ft]	11.65	45.03	9.57	50.11	10.92	6.53	23.19	4.58	33.73	26.16	25.48
Approach Delay [s/veh]	12.50		12.59			11.21			12.31		
Approach LOS	B		B			B			B		
Intersection Delay [s/veh]	12.26										
Intersection LOS	B										

Westgrove Apartments

Vistro File: G:\...\PMOY_PH1.vistro
Report File: G:\...\PMOYp_PH1.pdf

Scenario 2 Opening Year (2020) With Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.750	34.2	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	1.028	71.6	E
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.919	44.9	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.007	13.6	B
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.049	14.3	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.067	13.1	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	NB Thru	1.056	40.9	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.750

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	106	261	189	67	546	20	9	114	257	157	64	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	110	82	13	133	4	9	16	72	52	14	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	371	271	80	679	24	18	130	329	209	78	62
Peak Hour Factor	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	101	74	22	184	7	5	35	89	57	21	17
Total Analysis Volume [veh/h]	153	403	294	87	738	26	20	141	357	227	85	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	19	0	16	21	0	0	19	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	22	22	6	20	20	19	19	12	12	12
g / C, Green / Cycle	0.11	0.29	0.29	0.08	0.26	0.26	0.25	0.25	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.09	0.22	0.19	0.05	0.22	0.02	0.09	0.23	0.13	0.05	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1789	1530	1714	1638	1530
c, Capacity [veh/h]	190	527	448	135	894	399	453	388	277	265	248
d1, Uniform Delay [s]	32.61	24.21	23.26	33.57	26.15	20.88	23.00	27.30	30.41	27.83	27.59
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.78	10.14	7.33	5.02	8.59	0.31	0.47	11.76	5.88	0.69	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.76	0.66	0.64	0.83	0.07	0.36	0.92	0.82	0.32	0.27
d, Delay for Lane Group [s/veh]	40.39	34.35	30.59	38.59	34.74	21.19	23.47	39.06	36.29	28.52	28.17
Lane Group LOS	D	C	C	D	C	C	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.93	7.30	4.99	1.62	6.64	0.35	2.18	6.84	4.10	1.30	1.02
50th-Percentile Queue Length [ft/ln]	73.20	182.43	124.66	40.57	166.07	8.71	54.43	171.04	102.38	32.47	25.38
95th-Percentile Queue Length [veh/ln]	5.27	11.73	8.65	2.92	10.87	0.63	3.92	11.13	7.37	2.34	1.83
95th-Percentile Queue Length [ft/ln]	131.76	293.18	216.21	73.03	271.74	15.68	97.98	278.28	184.29	58.45	45.69

Movement, Approach, & Intersection Results

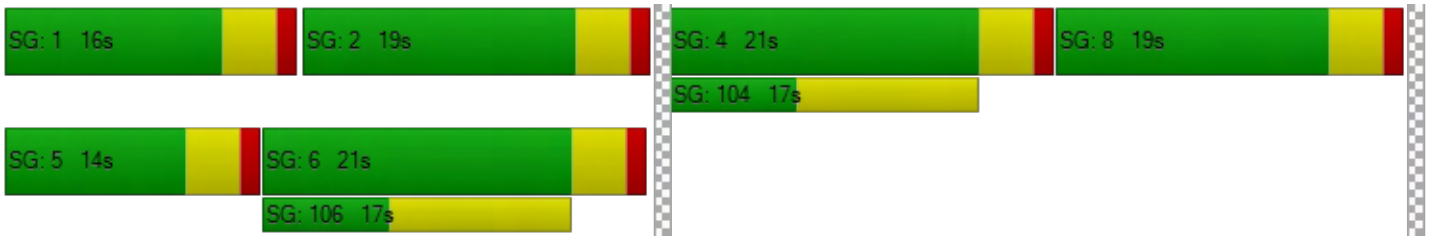
d_M, Delay for Movement [s/veh]	40.39	34.35	30.59	38.59	34.74	21.19	23.47	23.47	39.06	36.29	28.52	28.17
Movement LOS	D	C	C	D	C	C	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	34.14			34.72			34.22			33.11		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	34.19											
Intersection LOS	C											
Intersection V/C	0.750											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	27.31	27.31	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.057	2.407	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	453	400	453
d_b, Bicycle Delay [s]	24.00	22.43	24.00	22.43
l_b,int, Bicycle LOS Score for Intersection	2.962	2.262	2.414	1.872
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	71.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.028

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	473	722	0	0	204	388	0	0	0	356	9	386
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	199	0	0	160	97	0	0	0	103	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	551	921	0	0	364	485	0	0	0	459	9	414
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	148	247	0	0	98	130	0	0	0	123	2	111
Total Analysis Volume [veh/h]	592	989	0	0	391	521	0	0	0	493	10	445
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	44	87	0	0	43	0	0	0	0	0	38	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	125	125	125	125		125	125
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	40	83	39	39		34	34
g / C, Green / Cycle	0.32	0.66	0.31	0.31		0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.35	0.29	0.08	0.34		0.29	0.29
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1716	1530
c, Capacity [veh/h]	548	2275	1531	478		467	416
d1, Uniform Delay [s]	42.50	9.92	32.12	42.97		45.48	45.48
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	61.82	0.61	0.40	68.04		64.09	63.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.08	0.43	0.26	1.09		1.08	1.07
d, Delay for Lane Group [s/veh]	104.32	10.52	32.52	111.01		109.57	109.24
Lane Group LOS	F	B	C	F		F	F
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	25.57	5.82	2.93	23.14		22.67	20.17
50th-Percentile Queue Length [ft/ln]	639.16	145.56	73.36	578.38		566.64	504.30
95th-Percentile Queue Length [veh/ln]	35.61	9.78	5.28	32.79		31.91	28.68
95th-Percentile Queue Length [ft/ln]	890.31	244.49	132.05	819.77		797.64	717.09

Movement, Approach, & Intersection Results

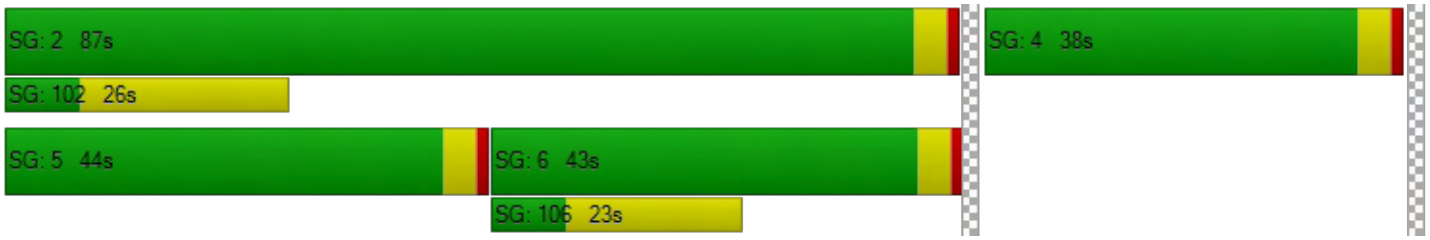
d_M, Delay for Movement [s/veh]	104.32	10.52	0.00	0.00	32.52	111.01	0.00	0.00	0.00	109.57	109.57	109.24
Movement LOS	F	B			C	F				F	F	F
d_A, Approach Delay [s/veh]	45.65			77.36			0.00			109.41		
Approach LOS	D			E			A			F		
d_I, Intersection Delay [s/veh]	71.62											
Intersection LOS	E											
Intersection V/C	1.028											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.534	2.193
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1328	624	0	544
d_b, Bicycle Delay [s]	7.06	29.58	62.50	33.12
l_b,int, Bicycle LOS Score for Intersection	2.864	2.061	4.132	3.124
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	44.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.919

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	860	450	267	533	0	350	3	377	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	192	100	45	218	0	85	0	83	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1052	550	312	751	0	435	3	460	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	273	143	81	195	0	113	1	120	0	0	0
Total Analysis Volume [veh/h]	0	1093	572	324	780	0	452	3	478	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	84.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	52	0	29	81	0	0	44	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	125	125	125	125	125	125	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	48	48	25	77	40	40	
g / C, Green / Cycle	0.38	0.38	0.20	0.62	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.37	0.19	0.23	0.27	0.31	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1884	588	343	2112	548	489	
d1, Uniform Delay [s]	30.46	37.81	49.29	11.90	39.35	42.05	
k, delay calibration	0.50	0.50	0.29	0.50	0.33	0.44	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.31	30.98	25.97	0.50	9.55	33.19	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.58	0.97	0.95	0.37	0.83	0.98	
d, Delay for Lane Group [s/veh]	31.77	68.79	75.26	12.40	48.90	75.23	
Lane Group LOS	C	E	E	B	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.58	21.33	12.14	5.07	14.29	18.92	
50th-Percentile Queue Length [ft/ln]	214.47	533.28	303.56	126.83	357.23	472.91	
95th-Percentile Queue Length [veh/ln]	13.38	28.91	17.86	8.77	20.49	26.05	
95th-Percentile Queue Length [ft/ln]	334.56	722.64	446.43	219.17	512.21	651.23	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	31.77	68.79	75.26	12.40	0.00	48.90	48.90	75.23	0.00	0.00	0.00
Movement LOS		C	E	E	B		D	D	E			
d_A, Approach Delay [s/veh]	44.49			30.85			62.39			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	44.93											
Intersection LOS	D											
Intersection V/C	0.919											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.185	2.316
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	768	1232	640	0
d_b, Bicycle Delay [s]	23.72	9.22	28.90	62.50
l_b,int, Bicycle LOS Score for Intersection	2.475	2.470	3.099	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	310	1	2	238	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	3	0	16	0	111	0	0	62	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	3	0	16	0	421	1	2	300	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	4	0	114	0	1	82	0
Total Analysis Volume [veh/h]	0	0	0	3	0	17	0	458	1	2	326	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.52	0.00	10.93	13.59	0.00	10.18	0.00	0.00	0.00	8.24	0.00	0.00
Movement LOS	B		B	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.37	0.00	2.37	0.00	0.00	0.00	0.14	0.07	0.00
d_A, Approach Delay [s/veh]	12.23			10.69			0.00			0.05		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.29											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.049

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	0	0	370	271	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	12	42	72	50	35
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	12	42	442	321	35
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	3	11	120	87	10
Total Analysis Volume [veh/h]	20	13	46	480	349	38
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.02	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.31	10.38	8.17	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.06	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.87	1.46	3.03	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.76		0.71		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.84					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.067

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	330	0	0	300	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	51	15	17	0	0	0	0	29	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	340	51	15	317	0	0	0	0	29	0	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	92	14	4	86	0	0	0	0	8	0	2
Total Analysis Volume [veh/h]	0	370	55	16	345	0	0	0	0	32	0	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	Yes
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.01
d_M, Delay for Movement [s/veh]	7.94	0.00	0.00	8.19	0.00	0.00	12.32	0.00	9.25	13.09	0.00	10.09
Movement LOS	A	A	A	A	A	A	B		A	B		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.00	0.00	6.32	0.00	6.32
d_A, Approach Delay [s/veh]	0.00			0.36			10.78			12.43		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	0.77											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	40.9
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.056

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	45	282	190	68	222	10	29	348	73	141	176	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	8	1	16	7	30	55	29	5	1	45	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	290	191	84	229	40	84	377	78	142	221	47
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	78	52	23	62	11	23	102	21	38	60	13
Total Analysis Volume [veh/h]	59	313	206	91	247	43	91	407	84	153	239	51
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	451	519	403	423	456	426	449	486	396	417	428
Degree of Utilization, x	0.13	1.06	0.23	0.58	0.09	0.21	0.91	0.17	0.39	0.35	0.34

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.45	15.77	0.86	3.61	0.31	0.80	10.01	0.62	1.78	1.53	1.48
95th-Percentile Queue Length [ft]	11.20	394.22	21.41	90.25	7.76	19.99	250.27	15.50	44.57	38.32	36.97
Approach Delay [s/veh]	75.63		19.23			39.21			16.24		
Approach LOS	F		C			E			C		
Intersection Delay [s/veh]	40.86										
Intersection LOS	E										

YEAR 2022 WITHOUT PROJECT

WITH RECIPRICAL ACCESS

Westgrove Apartments

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Scenario 1 Opening Year (2022) Without Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.626	26.0	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	1.238	110.5	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.756	36.7	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.000	12.2	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.108	13.1	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.450	12.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	26.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	242	527	109	43	258	11	5	17	98	83	69	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	72	94	24	10	66	9	3	11	27	76	13	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	621	133	53	324	20	8	28	125	159	82	59
Peak Hour Factor	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	158	34	13	82	5	2	7	32	40	21	15
Total Analysis Volume [veh/h]	319	631	135	54	329	20	8	28	127	161	83	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	30	0	11	21	0	0	13	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	37	37	5	26	26	8	8	9	9	9
g / C, Green / Cycle	0.21	0.49	0.49	0.06	0.35	0.35	0.11	0.11	0.12	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.19	0.35	0.09	0.03	0.10	0.01	0.02	0.08	0.09	0.05	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1780	1530	1714	1638	1530
c, Capacity [veh/h]	359	881	748	111	1180	527	193	166	214	205	191
d1, Uniform Delay [s]	28.87	15.11	10.77	33.97	17.88	16.38	30.54	32.63	31.78	30.33	29.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.45	4.97	0.53	3.26	0.59	0.13	0.46	7.24	5.22	1.29	0.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.72	0.18	0.49	0.28	0.04	0.19	0.77	0.75	0.41	0.31
d, Delay for Lane Group [s/veh]	36.33	20.09	11.29	37.23	18.47	16.52	31.00	39.87	37.00	31.62	30.90
Lane Group LOS	D	C	B	D	B	B	C	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.82	8.07	1.15	0.99	1.93	0.22	0.58	2.42	2.92	1.36	0.97
50th-Percentile Queue Length [ft/ln]	145.41	201.72	28.85	24.77	48.25	5.60	14.45	60.46	73.12	33.98	24.19
95th-Percentile Queue Length [veh/ln]	9.77	12.73	2.08	1.78	3.47	0.40	1.04	4.35	5.26	2.45	1.74
95th-Percentile Queue Length [ft/ln]	244.30	318.18	51.93	44.59	86.85	10.08	26.01	108.82	131.61	61.16	43.55

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.33	20.09	11.29	37.23	18.47	16.52	31.00	31.00	39.87	37.00	31.62	30.90
Movement LOS	D	C	B	D	B	B	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	23.77			20.89			37.91			34.33		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	26.00											
Intersection LOS	C											
Intersection V/C	0.626											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	27.31	27.31	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.018	2.335	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	693	453	240	453
d_b, Bicycle Delay [s]	16.01	22.43	29.04	22.43
I_b,int, Bicycle LOS Score for Intersection	3.350	1.892	1.829	1.810
Bicycle LOS	C	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	110.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.238

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	605	595	0	0	567	701	0	0	0	253	2	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	155	0	0	85	84	0	0	0	72	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	667	750	0	0	652	785	0	0	0	325	2	180
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	180	203	0	0	176	212	0	0	0	88	1	49
Total Analysis Volume [veh/h]	721	810	0	0	704	848	0	0	0	351	2	194
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	46	105	0	0	59	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	130	130	130	130		130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	42	101	55	55		21	21
g / C, Green / Cycle	0.32	0.78	0.42	0.42		0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.42	0.24	0.14	0.55		0.21	0.13
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1715	1530
c, Capacity [veh/h]	553	2662	2075	647		277	247
d1, Uniform Delay [s]	44.00	4.24	25.24	37.48		54.46	52.28
k, delay calibration	0.50	0.50	0.50	0.50		0.37	0.12
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	149.25	0.30	0.44	150.26		142.17	5.95
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.30	0.30	0.34	1.31		1.27	0.78
d, Delay for Lane Group [s/veh]	193.25	4.54	25.69	187.74		196.63	58.24
Lane Group LOS	F	A	C	F		F	E
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	39.99	2.49	4.82	46.40		20.01	6.49
50th-Percentile Queue Length [ft/ln]	999.80	62.30	120.38	1160.06		500.33	162.33
95th-Percentile Queue Length [veh/ln]	58.82	4.49	8.41	68.47		30.47	10.67
95th-Percentile Queue Length [ft/ln]	1470.62	112.14	210.35	1711.80		761.64	266.80

Movement, Approach, & Intersection Results

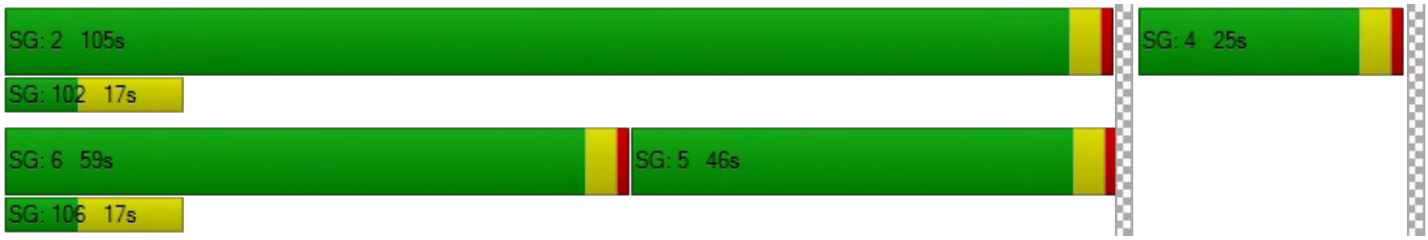
d_M, Delay for Movement [s/veh]	193.25	4.54	0.00	0.00	25.69	187.74	0.00	0.00	0.00	196.63	196.63	58.24
Movement LOS	F	A			C	F				F	F	E
d_A, Approach Delay [s/veh]	93.41			114.23			0.00			147.55		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	110.47											
Intersection LOS	F											
Intersection V/C	1.238											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	54.47	54.47
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.973	1.999
Crosswalk LOS	F	F	C	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1554	846	0	323
d_b, Bicycle Delay [s]	3.23	21.63	65.00	45.70
l_b,int, Bicycle LOS Score for Intersection	2.823	2.413	4.132	2.462
Bicycle LOS	C	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	36.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.756

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	710	296	81	537	0	560	3	492	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	134	71	13	144	0	83	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	844	367	94	681	0	643	3	549	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	227	99	25	183	0	173	1	147	0	0	0
Total Analysis Volume [veh/h]	0	907	394	101	732	0	691	3	590	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	3.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	46	0	14	60	0	0	70	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	130	130	130	130	130	130	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	53	53	9	66	56	56	
g / C, Green / Cycle	0.41	0.41	0.07	0.51	0.43	0.43	
(v / s)_i Volume / Saturation Flow Rate	0.18	0.26	0.06	0.21	0.40	0.39	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1992	622	123	1744	736	657	
d1, Uniform Delay [s]	28.09	30.83	59.46	19.92	35.51	34.40	
k, delay calibration	0.50	0.50	0.11	0.50	0.32	0.29	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.75	4.87	12.54	0.74	15.94	11.33	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.63	0.82	0.42	0.94	0.90	
d, Delay for Lane Group [s/veh]	28.84	35.70	72.00	20.66	51.45	45.73	
Lane Group LOS	C	D	E	C	D	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	6.77	10.33	3.64	6.78	23.88	19.06	
50th-Percentile Queue Length [ft/ln]	169.27	258.18	91.05	169.49	597.12	476.40	
95th-Percentile Queue Length [veh/ln]	11.04	15.60	6.56	11.05	31.90	26.22	
95th-Percentile Queue Length [ft/ln]	275.95	389.94	163.89	276.24	797.49	655.38	

Movement, Approach, & Intersection Results

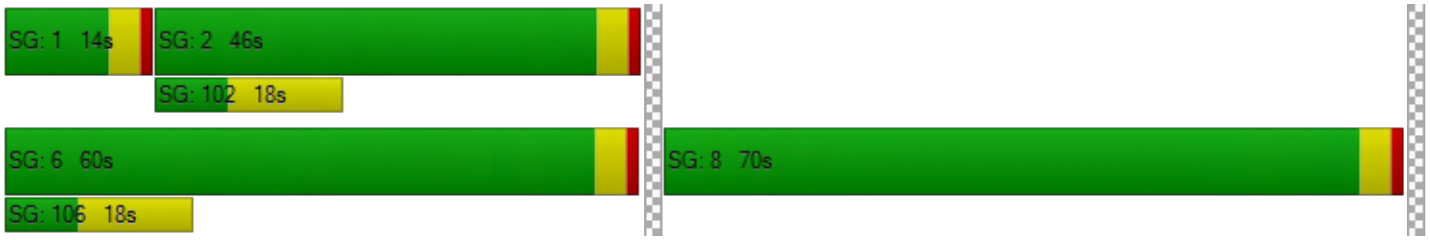
d_M, Delay for Movement [s/veh]	0.00	28.84	35.70	72.00	20.66	0.00	51.45	51.45	45.73	0.00	0.00	0.00
Movement LOS		C	D	E	C		D	D	D			
d_A, Approach Delay [s/veh]	30.92			26.89			48.82			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	36.66											
Intersection LOS	D											
Intersection V/C	0.756											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	54.47	54.47
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.358	1.927
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	646	862	1015	0
d_b, Bicycle Delay [s]	29.78	21.06	15.75	65.00
l_b,int, Bicycle LOS Score for Intersection	2.275	2.247	3.678	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	110	40	26	220	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	45	0	0	100	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	155	40	26	320	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	42	11	7	87	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	168	42	27	348	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	12.17	0.00	9.20	12.23	0.00	10.14	0.00	0.00	0.00	7.68	0.00	0.00
Movement LOS	B		A	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.03	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	0.72	0.00
d_A, Approach Delay [s/veh]	10.68			11.19			0.00			0.55		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.35											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.108

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	170	0	0	247	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	21	9	14	4	3	3	10	0	57	50	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	179	14	4	250	3	10	0	57	50	0	14
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	49	4	1	68	1	3	0	15	14	0	4
Total Analysis Volume [veh/h]	23	195	15	4	272	3	11	0	62	54	0	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.07	0.11	0.00	0.02
d_M, Delay for Movement [s/veh]	7.82	0.00	0.00	7.63	0.00	0.00	12.63	0.00	9.49	13.11	0.00	9.76
Movement LOS	A	A	A	A	A	A	B		A	B		A
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.01	0.00	0.00	0.30	0.00	0.30	0.42	0.00	0.42
95th-Percentile Queue Length [ft/ln]	1.35	0.00	0.00	0.22	0.00	0.00	7.52	0.00	7.52	10.54	0.00	10.54
d_A, Approach Delay [s/veh]	0.77			0.11			9.96			12.38		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	2.74											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.450

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	58	133	64	23	193	31	16	84	20	136	198	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	0	64	17	50	19	15	2	2	26	21
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	143	64	87	210	81	35	99	22	138	224	42
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	41	18	25	60	23	10	28	6	39	64	12
Total Analysis Volume [veh/h]	66	162	73	99	238	92	40	112	25	157	254	48
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	506	557	495	529	586	480	511	563	485	519	535
Degree of Utilization, x	0.13	0.42	0.20	0.45	0.16	0.08	0.22	0.04	0.32	0.29	0.28

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.45	2.08	0.74	2.31	0.55	0.27	0.83	0.14	1.39	1.20	1.15
95th-Percentile Queue Length [ft]	11.16	52.01	18.50	57.71	13.84	6.79	20.71	3.48	34.75	30.01	28.77
Approach Delay [s/veh]	13.15		13.16			11.20			12.73		
Approach LOS	B		B			B			B		
Intersection Delay [s/veh]	12.76										
Intersection LOS	B										

Westgrove Apartments

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Report File: G:\...\PMOY_PH2.pdf

Scenario 1 Opening Year (2022) Without Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.767	36.6	D
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	1.079	80.5	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.934	46.4	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.000	13.5	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.118	20.0	C
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	NB Thru	1.123	48.0	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	36.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.767

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	106	268	211	72	574	20	9	117	257	179	68	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	110	78	14	133	4	9	16	72	47	14	13
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	378	289	86	707	24	18	133	329	226	82	67
Peak Hour Factor	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	103	78	23	192	7	5	36	89	61	22	18
Total Analysis Volume [veh/h]	153	411	314	93	768	26	20	145	357	246	89	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	14	25	0	11	22	0	0	23	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	24	24	6	21	21	21	21	14	14	14
g / C, Green / Cycle	0.11	0.30	0.30	0.08	0.26	0.26	0.26	0.26	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.09	0.23	0.21	0.05	0.22	0.02	0.09	0.23	0.14	0.05	0.05
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1789	1530	1714	1638	1530
c, Capacity [veh/h]	190	534	454	133	904	404	457	390	293	280	261
d1, Uniform Delay [s]	34.83	25.71	24.96	36.07	28.01	22.11	24.51	29.02	32.19	29.16	28.95
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.17	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.85	10.24	8.39	6.42	9.80	0.31	0.48	12.89	6.39	0.65	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.77	0.69	0.70	0.85	0.06	0.36	0.91	0.84	0.32	0.28
d, Delay for Lane Group [s/veh]	42.68	35.95	33.35	42.49	37.82	22.42	24.99	41.91	38.59	29.80	29.53
Lane Group LOS	D	D	C	D	D	C	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.14	7.95	5.83	1.91	7.57	0.37	2.42	7.45	4.80	1.45	1.18
50th-Percentile Queue Length [ft/ln]	78.55	198.82	145.75	47.66	189.22	9.33	60.55	186.16	120.01	36.32	29.60
95th-Percentile Queue Length [veh/ln]	5.66	12.58	9.79	3.43	12.08	0.67	4.36	11.92	8.39	2.62	2.13
95th-Percentile Queue Length [ft/ln]	141.39	314.45	244.74	85.80	302.02	16.79	108.99	298.04	209.84	65.38	53.29

Movement, Approach, & Intersection Results

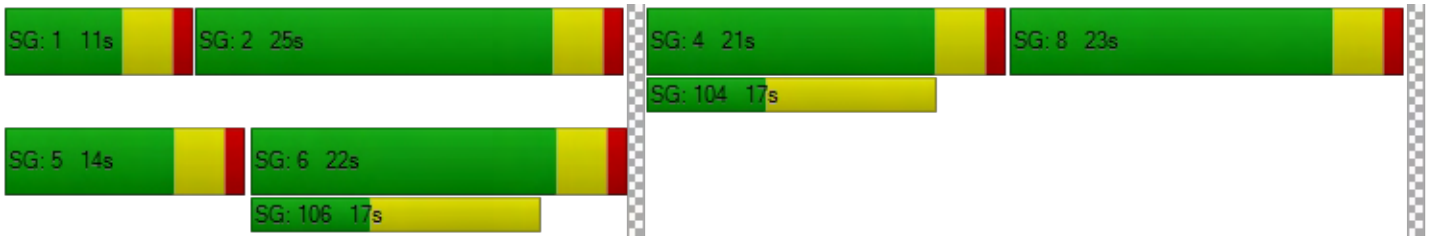
d_M, Delay for Movement [s/veh]	42.68	35.95	33.35	42.49	37.82	22.42	24.99	24.99	41.91	38.59	29.80	29.53
Movement LOS	D	D	C	D	D	C	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	36.19			37.85			36.56			35.05		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	36.64											
Intersection LOS	D											
Intersection V/C	0.767											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	29.76	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.069	2.413	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	525	450	475	425
d_b, Bicycle Delay [s]	21.76	24.03	23.26	24.81
l_b,int, Bicycle LOS Score for Intersection	3.008	2.291	2.421	1.896
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	80.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.079

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	497	753	0	0	226	424	0	0	0	364	9	386
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	206	0	0	151	101	0	0	0	103	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	575	959	0	0	377	525	0	0	0	467	9	403
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	154	258	0	0	101	141	0	0	0	125	2	108
Total Analysis Volume [veh/h]	618	1030	0	0	405	564	0	0	0	502	10	433
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	44	88	0	0	44	0	0	0	0	0	37	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	125	125	125	125		125	125
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	40	84	40	40		33	33
g / C, Green / Cycle	0.32	0.67	0.32	0.32		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.36	0.30	0.08	0.37		0.30	0.28
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1716	1530
c, Capacity [veh/h]	548	2303	1570	490		453	404
d1, Uniform Delay [s]	42.50	9.61	31.48	42.47		45.98	45.98
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	78.55	0.63	0.40	89.41		82.90	65.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.13	0.45	0.26	1.15		1.13	1.07
d, Delay for Lane Group [s/veh]	121.05	10.24	31.87	131.89		128.88	111.23
Lane Group LOS	F	B	C	F		F	F
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	28.11	5.96	3.01	26.60		24.39	19.76
50th-Percentile Queue Length [ft/ln]	702.85	149.04	75.17	665.12		609.67	494.10
95th-Percentile Queue Length [veh/ln]	39.74	9.97	5.41	38.29		34.92	28.21
95th-Percentile Queue Length [ft/ln]	993.59	249.15	135.30	957.20		872.93	705.15

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	121.05	10.24	0.00	0.00	31.87	131.89	0.00	0.00	0.00	128.88	128.88	111.23
Movement LOS	F	B			C	F				F	F	F
d_A, Approach Delay [s/veh]	51.80			90.08			0.00			120.79		
Approach LOS	D			F			A			F		
d_I, Intersection Delay [s/veh]	80.52											
Intersection LOS	F											
Intersection V/C	1.079											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.601	2.191
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1344	640	0	528
d_b, Bicycle Delay [s]	6.72	28.90	62.50	33.86
l_b,int, Bicycle LOS Score for Intersection	2.919	2.093	4.132	3.119
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	46.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.934

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	905	460	276	561	0	365	3	389	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	193	100	35	219	0	91	0	83	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1098	560	311	780	0	456	3	472	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	285	145	81	203	0	118	1	123	0	0	0
Total Analysis Volume [veh/h]	0	1141	582	323	811	0	474	3	490	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	85.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	52	0	28	80	0	0	45	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	125	125	125	125	125	125	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	48	48	24	76	41	41	
g / C, Green / Cycle	0.38	0.38	0.19	0.61	0.33	0.33	
(v / s)_i Volume / Saturation Flow Rate	0.23	0.38	0.19	0.24	0.28	0.32	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1884	588	330	2085	562	501	
d1, Uniform Delay [s]	30.87	38.22	50.21	12.54	39.13	41.55	
k, delay calibration	0.50	0.50	0.29	0.50	0.35	0.45	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.46	34.77	33.37	0.55	10.88	32.87	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.61	0.99	0.98	0.39	0.85	0.98	
d, Delay for Lane Group [s/veh]	32.32	72.99	83.59	13.09	50.01	74.42	
Lane Group LOS	C	E	F	B	D	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	9.08	22.41	12.80	5.49	15.21	19.32	
50th-Percentile Queue Length [ft/ln]	227.08	560.23	319.90	137.22	380.27	482.91	
95th-Percentile Queue Length [veh/ln]	14.03	30.17	18.66	9.33	21.61	26.52	
95th-Percentile Queue Length [ft/ln]	350.65	754.32	466.56	233.27	540.18	663.10	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	32.32	72.99	83.59	13.09	0.00	50.01	50.01	74.42	0.00	0.00	0.00
Movement LOS		C	E	F	B		D	D	E			
d_A, Approach Delay [s/veh]	46.06			33.17			62.38			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	46.37											
Intersection LOS	D											
Intersection V/C	0.934											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.202	2.324
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	768	1216	656	0
d_b, Bicycle Delay [s]	23.72	9.60	28.22	62.50
l_b,int, Bicycle LOS Score for Intersection	2.507	2.495	3.155	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	310	1	2	238	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	108	0	0	74	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	418	1	2	312	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	114	0	1	85	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	454	1	2	339	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.46	0.00	10.90	13.47	0.00	10.09	0.00	0.00	0.00	8.23	0.00	0.00
Movement LOS	B		B	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.07	0.00
d_A, Approach Delay [s/veh]	12.18			11.78			0.00			0.05		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.02											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	20.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.118

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	350	0	0	328	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	59	5	51	15	9	10	6	0	37	29	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	355	51	15	337	10	6	0	37	29	0	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	96	14	4	92	3	2	0	10	8	0	2
Total Analysis Volume [veh/h]	64	386	55	16	366	11	7	0	40	32	0	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.05	0.12	0.00	0.01
d_M, Delay for Movement [s/veh]	8.19	0.00	0.00	8.23	0.00	0.00	17.54	0.00	9.78	19.95	0.00	11.24
Movement LOS	A	A	A	A	A	A	C		A	C		B
95th-Percentile Queue Length [veh/ln]	0.17	0.00	0.00	0.04	0.00	0.00	0.23	0.00	0.23	0.44	0.00	0.44
95th-Percentile Queue Length [ft/ln]	4.25	0.00	0.00	1.08	0.00	0.00	5.79	0.00	5.79	11.00	0.00	11.00
d_A, Approach Delay [s/veh]	1.04			0.34			10.93			18.04		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	1.94											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	48.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.123

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	50	295	190	78	237	13	35	370	72	141	197	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	18	1	41	13	31	65	19	0	1	26	67
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	313	191	119	250	44	100	389	72	142	223	87
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	85	52	32	68	12	27	105	19	38	60	24
Total Analysis Volume [veh/h]	56	338	206	129	270	48	108	420	78	153	241	94
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	446	544	395	414	445	424	445	479	388	407	424
Degree of Utilization, x	0.13	1.12	0.33	0.65	0.11	0.26	0.94	0.16	0.39	0.41	0.40

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.43	18.48	1.40	4.50	0.36	1.00	11.08	0.58	1.84	1.97	1.85
95th-Percentile Queue Length [ft]	10.68	461.92	34.99	112.55	9.01	25.06	276.96	14.39	45.95	49.17	46.34
Approach Delay [s/veh]	96.28		21.82			44.25			17.35		
Approach LOS	F		C			E			C		
Intersection Delay [s/veh]	48.02										
Intersection LOS	E										

YEAR 2022 WITH PROJECT

WITH RECIPRICAL ACCESS

Westgrove Apartments

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Report File: G:\...\AMOYp_PH2.pdf

Scenario 2 Opening Year (2022) With Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.654	27.1	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	1.257	113.9	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.772	36.3	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.008	12.8	B
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.029	12.2	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.111	13.4	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.472	13.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	27.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.654

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	242	527	109	43	258	11	5	17	98	83	69	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	72	94	37	11	66	9	3	11	27	117	13	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	621	146	54	324	20	8	28	125	200	82	63
Peak Hour Factor	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	158	37	14	82	5	2	7	32	51	21	16
Total Analysis Volume [veh/h]	319	631	148	55	329	20	8	28	127	203	83	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	30	0	11	21	0	0	13	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	35	35	5	24	24	8	8	11	11	11
g / C, Green / Cycle	0.21	0.47	0.47	0.06	0.32	0.32	0.11	0.11	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.19	0.35	0.10	0.03	0.10	0.01	0.02	0.08	0.12	0.05	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1780	1530	1714	1638	1530
c, Capacity [veh/h]	359	837	711	112	1100	491	192	165	256	244	228
d1, Uniform Delay [s]	28.87	16.58	11.92	33.94	19.20	17.58	30.57	32.66	30.89	28.69	28.42
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.45	6.24	0.66	3.28	0.70	0.16	0.47	7.40	5.52	0.82	0.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.75	0.21	0.49	0.30	0.04	0.19	0.77	0.79	0.34	0.28
d, Delay for Lane Group [s/veh]	36.33	22.82	12.58	37.23	19.89	17.74	31.04	40.06	36.42	29.50	29.08
Lane Group LOS	D	C	B	D	B	B	C	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.82	8.79	1.37	1.01	2.03	0.24	0.58	2.43	3.66	1.30	0.99
50th-Percentile Queue Length [ft/ln]	145.41	219.84	34.24	25.22	50.74	5.89	14.46	60.63	91.60	32.44	24.77
95th-Percentile Queue Length [veh/ln]	9.77	13.66	2.47	1.82	3.65	0.42	1.04	4.37	6.59	2.34	1.78
95th-Percentile Queue Length [ft/ln]	244.30	341.42	61.63	45.40	91.34	10.59	26.03	109.14	164.87	58.39	44.59

Movement, Approach, & Intersection Results

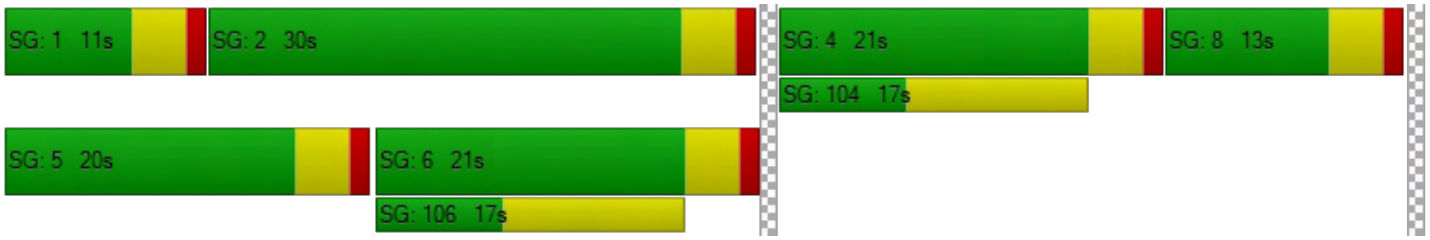
d_M, Delay for Movement [s/veh]	36.33	22.82	12.58	37.23	19.89	17.74	31.04	31.04	40.06	36.42	29.50	29.08
Movement LOS	D	C	B	D	B	B	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	25.36			22.15			38.07			33.44		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	27.15											
Intersection LOS	C											
Intersection V/C	0.654											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	27.31	27.31	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.019	2.335	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	693	453	240	453
d_b, Bicycle Delay [s]	16.01	22.43	29.04	22.43
I_b,int, Bicycle LOS Score for Intersection	3.371	1.893	1.829	1.848
Bicycle LOS	C	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	113.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.257

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	605	595	0	0	567	701	0	0	0	253	2	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	164	0	0	104	106	0	0	0	72	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	667	759	0	0	671	807	0	0	0	325	2	184
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	180	205	0	0	181	218	0	0	0	88	1	50
Total Analysis Volume [veh/h]	721	820	0	0	725	872	0	0	0	351	2	199
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	44	101	0	0	57	0	0	0	0	0	24	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	125	125	125	125		125	125
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	40	97	53	53		20	20
g / C, Green / Cycle	0.32	0.78	0.42	0.42		0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.42	0.24	0.15	0.57		0.21	0.13
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1715	1530
c, Capacity [veh/h]	548	2659	2079	649		275	245
d1, Uniform Delay [s]	42.50	4.13	24.33	35.99		52.47	50.65
k, delay calibration	0.50	0.50	0.50	0.50		0.35	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	154.44	0.30	0.46	165.09		146.16	6.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.32	0.31	0.35	1.34		1.28	0.81
d, Delay for Lane Group [s/veh]	196.93	4.43	24.79	201.08		198.63	57.35
Lane Group LOS	F	A	C	F		F	E
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	39.67	2.38	4.75	48.25		19.75	6.47
50th-Percentile Queue Length [ft/ln]	991.80	59.58	118.73	1206.29		493.72	161.67
95th-Percentile Queue Length [veh/ln]	58.61	4.29	8.32	71.87		30.20	10.64
95th-Percentile Queue Length [ft/ln]	1465.17	107.25	208.08	1796.69		755.09	265.93

Movement, Approach, & Intersection Results

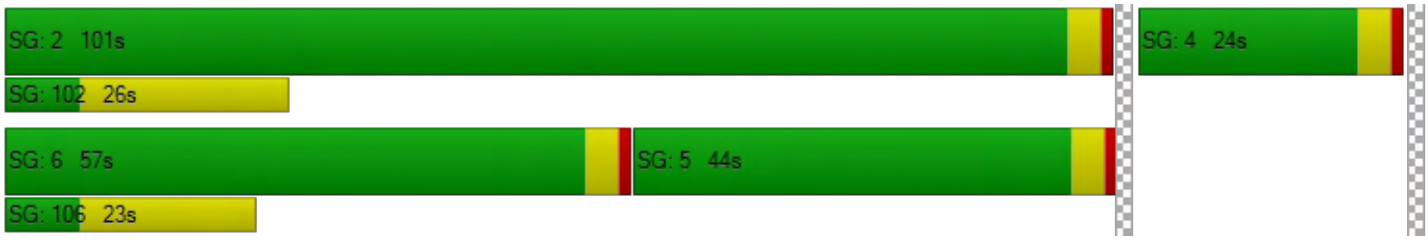
d_M, Delay for Movement [s/veh]	196.93	4.43	0.00	0.00	24.79	201.08	0.00	0.00	0.00	198.63	198.63	57.35
Movement LOS	F	A			C	F				F	F	E
d_A, Approach Delay [s/veh]	94.50			121.05			0.00			147.70		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	113.95											
Intersection LOS	F											
Intersection V/C	1.257											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.994	2.000
Crosswalk LOS	F	F	C	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1552	848	0	320
d_b, Bicycle Delay [s]	3.14	20.74	62.50	44.10
l_b,int, Bicycle LOS Score for Intersection	2.831	2.438	4.132	2.470
Bicycle LOS	C	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	36.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.772

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	710	296	81	537	0	560	3	492	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	135	71	28	148	0	91	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	845	367	109	685	0	651	3	549	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	227	99	29	184	0	175	1	147	0	0	0
Total Analysis Volume [veh/h]	0	908	394	117	736	0	699	3	590	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	3.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	43	0	15	58	0	0	67	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	125	125	125	125	125	125	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	48	48	10	63	54	54	
g / C, Green / Cycle	0.39	0.39	0.08	0.50	0.43	0.43	
(v / s)_i Volume / Saturation Flow Rate	0.19	0.26	0.07	0.21	0.41	0.39	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1899	593	141	1718	745	665	
d1, Uniform Delay [s]	28.77	31.58	56.48	19.78	33.81	32.50	
k, delay calibration	0.50	0.50	0.11	0.50	0.33	0.30	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.87	5.80	11.85	0.78	16.14	10.49	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.48	0.66	0.83	0.43	0.94	0.89	
d, Delay for Lane Group [s/veh]	29.64	37.38	68.33	20.56	49.95	42.99	
Lane Group LOS	C	D	E	C	D	D	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	6.73	10.35	4.02	6.63	23.23	18.00	
50th-Percentile Queue Length [ft/ln]	168.25	258.81	100.41	165.80	580.68	450.07	
95th-Percentile Queue Length [veh/ln]	10.98	15.63	7.23	10.86	31.13	24.96	
95th-Percentile Queue Length [ft/ln]	274.62	390.73	180.74	271.39	778.28	624.04	

Movement, Approach, & Intersection Results

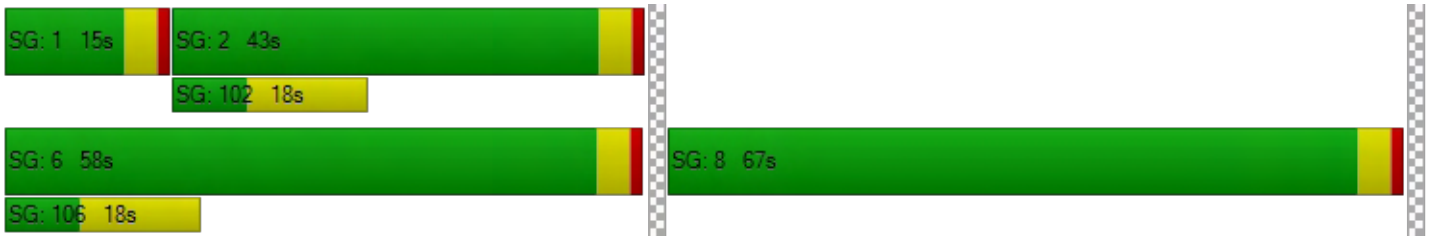
d_M, Delay for Movement [s/veh]	0.00	29.64	37.38	68.33	20.56	0.00	49.95	49.95	42.99	0.00	0.00	0.00
Movement LOS		C	D	E	C		D	D	D			
d_A, Approach Delay [s/veh]	31.98			27.11			46.77			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	36.32											
Intersection LOS	D											
Intersection V/C	0.772											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.360	1.940
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	624	864	1008	0
d_b, Bicycle Delay [s]	29.58	20.16	15.38	62.50
l_b,int, Bicycle LOS Score for Intersection	2.276	2.263	3.691	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	110	40	26	220	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	26	0	59	0	0	119	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	4	0	26	0	169	40	26	339	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	7	0	46	11	7	92	0
Total Analysis Volume [veh/h]	0	0	0	4	0	28	0	184	42	27	368	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	12.69	0.00	9.28	12.78	0.00	10.57	0.00	0.00	0.00	7.71	0.00	0.00
Movement LOS	B		A	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.16	0.00	0.16	0.00	0.00	0.00	0.06	0.03	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.89	0.00	3.89	0.00	0.00	0.00	1.47	0.73	0.00
d_A, Approach Delay [s/veh]	10.98			10.84			0.00			0.53		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.85											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	0	0	169	287	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	44	23	40	76	8
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	44	23	209	363	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	12	6	57	99	2
Total Analysis Volume [veh/h]	15	48	25	227	395	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.07	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.21	10.93	8.16	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.24	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.25	5.91	1.64	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.24		0.81		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.27					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.111

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	170	0	0	247	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	12	14	4	4	5	16	0	65	50	0	14
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	182	14	4	251	5	16	0	65	50	0	14
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	49	4	1	68	1	4	0	18	14	0	4
Total Analysis Volume [veh/h]	26	198	15	4	273	5	17	0	71	54	0	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.08	0.11	0.00	0.02
d_M, Delay for Movement [s/veh]	7.83	0.00	0.00	7.64	0.00	0.00	12.90	0.00	9.65	13.37	0.00	9.82
Movement LOS	A	A	A	A	A	A	B		A	B		A
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.01	0.00	0.00	0.39	0.00	0.39	0.43	0.00	0.43
95th-Percentile Queue Length [ft/ln]	1.53	0.00	0.00	0.22	0.00	0.00	9.63	0.00	9.63	10.84	0.00	10.84
d_A, Approach Delay [s/veh]	0.85			0.11			10.28			12.60		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	2.96											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.472

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	58	133	64	23	193	31	16	84	20	136	198	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	0	64	25	51	21	30	2	2	33	21
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	146	64	87	218	82	37	114	22	138	231	42
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	41	18	25	62	23	10	32	6	39	66	12
Total Analysis Volume [veh/h]	66	166	73	99	247	93	42	129	25	157	262	48
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	502	552	490	523	579	477	508	558	479	512	528
Degree of Utilization, x	0.13	0.43	0.20	0.47	0.16	0.09	0.25	0.04	0.33	0.30	0.29

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.45	2.17	0.75	2.50	0.57	0.29	1.00	0.14	1.41	1.27	1.21
95th-Percentile Queue Length [ft]	11.25	54.24	18.72	62.54	14.22	7.21	25.01	3.51	35.30	31.63	30.35
Approach Delay [s/veh]	13.42		13.59			11.58			12.97		
Approach LOS	B		B			B			B		
Intersection Delay [s/veh]	13.07										
Intersection LOS	B										

Westgrove Apartments

Vistro File: G:\...\PMOY_PH2.vistro
Report File: G:\...\PMOYp_PH2.pdf

Scenario 2 Opening Year (2022) With Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	SB Left	0.780	38.9	D
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	1.094	83.3	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	NB Right	0.945	46.8	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.007	14.2	B
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.028	15.4	C
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.124	20.8	C
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	NB Thru	1.165	53.6	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	38.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.780

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	106	268	211	72	574	20	9	117	257	179	68	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	110	116	18	133	4	9	16	72	73	14	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	378	327	90	707	24	18	133	329	252	82	69
Peak Hour Factor	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	103	89	24	192	7	5	36	89	68	22	19
Total Analysis Volume [veh/h]	153	411	355	98	768	26	20	145	357	274	89	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	13	11	0	28	26	0	0	25	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	26	26	6	23	23	22	22	16	16	16
g / C, Green / Cycle	0.11	0.30	0.30	0.07	0.27	0.27	0.25	0.25	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.09	0.23	0.23	0.06	0.22	0.02	0.09	0.23	0.16	0.05	0.05
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1789	1530	1714	1638	1530
c, Capacity [veh/h]	183	543	461	130	927	414	451	385	314	300	280
d1, Uniform Delay [s]	37.33	26.93	27.06	38.61	29.22	23.06	26.27	31.10	33.82	30.05	29.88
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.20	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.67	9.52	11.71	8.65	8.46	0.29	0.50	16.10	7.46	0.54	0.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.76	0.77	0.76	0.83	0.06	0.37	0.93	0.87	0.30	0.27
d, Delay for Lane Group [s/veh]	47.01	36.45	38.77	47.26	37.68	23.36	26.77	47.20	41.28	30.59	30.38
Lane Group LOS	D	D	D	D	D	C	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.44	8.33	7.48	2.21	7.86	0.40	2.62	8.29	5.79	1.53	1.28
50th-Percentile Queue Length [ft/ln]	86.03	208.26	187.12	55.34	196.55	9.89	65.61	207.17	144.74	38.21	32.05
95th-Percentile Queue Length [veh/ln]	6.19	13.06	11.97	3.98	12.46	0.71	4.72	13.01	9.74	2.75	2.31
95th-Percentile Queue Length [ft/ln]	154.86	326.59	299.28	99.62	311.52	17.80	118.10	325.20	243.39	68.77	57.69

Movement, Approach, & Intersection Results

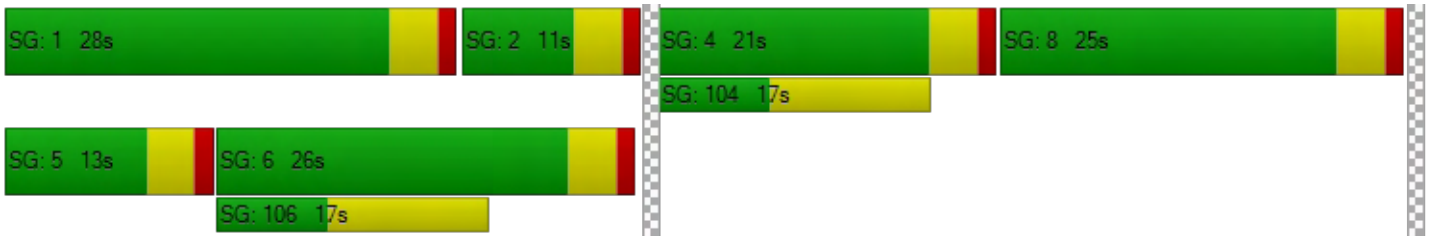
d_M, Delay for Movement [s/veh]	47.01	36.45	38.77	47.26	37.68	23.36	26.77	26.77	47.20	41.28	30.59	30.38
Movement LOS	D	D	D	D	D	C	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	39.11			38.31			40.74			37.24		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	38.86											
Intersection LOS	D											
Intersection V/C	0.780											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	32.21	32.21	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.073	2.416	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	165	518	494	400
d_b, Bicycle Delay [s]	35.79	23.35	24.09	27.20
l_b,int, Bicycle LOS Score for Intersection	3.076	2.296	2.421	1.921
Bicycle LOS	C	B	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	83.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.094

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	497	753	0	0	226	424	0	0	0	364	9	386
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	233	0	0	163	115	0	0	0	103	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	575	986	0	0	389	539	0	0	0	467	9	414
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	154	265	0	0	104	145	0	0	0	125	2	111
Total Analysis Volume [veh/h]	618	1059	0	0	418	579	0	0	0	502	10	445
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	40	81	0	0	41	0	0	0	0	0	34	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	115	115	115	115		115	115
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	36	77	37	37		30	30
g / C, Green / Cycle	0.31	0.67	0.32	0.32		0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.36	0.31	0.09	0.38		0.30	0.29
s, saturation flow rate [veh/h]	1714	3427	4903	1530		1716	1530
c, Capacity [veh/h]	536	2294	1577	492		448	399
d1, Uniform Delay [s]	39.49	9.09	28.91	38.99		42.47	42.47
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	88.15	0.67	0.41	98.93		87.99	79.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.15	0.46	0.27	1.18		1.14	1.11
d, Delay for Lane Group [s/veh]	127.64	9.76	29.32	137.92		130.47	122.29
Lane Group LOS	F	A	C	F		F	F
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	27.48	5.57	2.82	26.66		23.50	20.05
50th-Percentile Queue Length [ft/ln]	687.07	139.26	70.42	666.45		587.54	501.21
95th-Percentile Queue Length [veh/ln]	39.40	9.44	5.07	38.81		33.99	29.17
95th-Percentile Queue Length [ft/ln]	984.96	236.03	126.75	970.20		849.80	729.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	127.64	9.76	0.00	0.00	29.32	137.92	0.00	0.00	0.00	130.47	130.47	122.29
Movement LOS	F	A			C	F				F	F	F
d_A, Approach Delay [s/veh]	53.20			92.39			0.00			126.67		
Approach LOS	D			F			A			F		
d_I, Intersection Delay [s/veh]	83.32											
Intersection LOS	F											
Intersection V/C	1.094											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	47.03	47.03
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.612	2.193
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1339	643	0	522
d_b, Bicycle Delay [s]	6.28	26.45	57.50	31.41
l_b,int, Bicycle LOS Score for Intersection	2.943	2.108	4.132	3.139
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	46.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.945

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	905	460	276	561	0	365	3	389	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	197	100	45	221	0	114	0	83	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1102	560	321	782	0	479	3	472	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	286	145	83	203	0	124	1	123	0	0	0
Total Analysis Volume [veh/h]	0	1145	582	334	813	0	498	3	490	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	77.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	47	0	27	74	0	0	41	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	115	115	115	115	115	115	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	43	43	23	70	37	37	
g / C, Green / Cycle	0.37	0.37	0.20	0.61	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.23	0.38	0.19	0.24	0.29	0.32	
s, saturation flow rate [veh/h]	4903	1530	1714	3427	1715	1530	
c, Capacity [veh/h]	1833	572	343	2087	551	492	
d1, Uniform Delay [s]	29.41	35.99	45.66	11.53	37.37	38.92	
k, delay calibration	0.50	0.50	0.26	0.50	0.39	0.46	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.62	42.15	29.30	0.55	17.73	37.77	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.62	1.02	0.97	0.39	0.91	1.00	
d, Delay for Lane Group [s/veh]	31.02	78.14	74.95	12.08	55.11	76.69	
Lane Group LOS	C	F	E	B	E	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	8.46	21.70	11.91	4.92	16.01	18.70	
50th-Percentile Queue Length [ft/ln]	211.43	542.58	297.80	122.95	400.22	467.50	
95th-Percentile Queue Length [veh/ln]	13.23	29.71	17.57	8.56	22.57	25.79	
95th-Percentile Queue Length [ft/ln]	330.67	742.78	439.31	213.88	564.27	644.80	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	31.02	78.14	74.95	12.08	0.00	55.11	55.11	76.69	0.00	0.00	0.00
Movement LOS		C	F	E	B		E	E	E			
d_A, Approach Delay [s/veh]	46.90			30.39			65.78			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	46.84											
Intersection LOS	D											
Intersection V/C	0.945											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	47.03	47.03
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.210	2.331
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	748	1217	643	0
d_b, Bicycle Delay [s]	22.54	8.80	26.45	57.50
l_b,int, Bicycle LOS Score for Intersection	2.509	2.506	3.195	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	310	1	2	238	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	3	0	16	0	150	0	0	86	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	3	0	16	0	460	1	2	324	0
Peak Hour Factor	0.9200	0.9500	0.9200	0.9200	0.9500	0.9200	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	4	0	125	0	1	88	0
Total Analysis Volume [veh/h]	0	0	0	3	0	17	0	500	1	2	352	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.08	0.00	11.27	14.16	0.00	10.36	0.00	0.00	0.00	8.36	0.00	0.00
Movement LOS	B		B	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	2.47	0.00	2.47	0.00	0.00	0.00	0.14	0.07	0.00
d_A, Approach Delay [s/veh]	12.67			10.93			0.00			0.05		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.27											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	15.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	0	0	400	301	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	27	67	86	59	21
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	27	67	486	360	21
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	7	18	132	98	6
Total Analysis Volume [veh/h]	10	29	73	528	391	23
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.04	0.06	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	15.42	10.78	8.32	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.14	0.20	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.17	3.48	5.05	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.97		1.01		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.02					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.124

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	350	0	0	328	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	67	6	51	15	12	16	10	0	42	29	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	356	51	15	340	16	10	0	42	29	0	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	97	14	4	92	4	3	0	11	8	0	2
Total Analysis Volume [veh/h]	73	387	55	16	370	17	11	0	46	32	0	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.01	0.00	0.00	0.04	0.00	0.06	0.12	0.00	0.01
d_M, Delay for Movement [s/veh]	8.24	0.00	0.00	8.24	0.00	0.00	18.35	0.00	10.01	20.79	0.00	11.41
Movement LOS	A	A	A	A	A	A	C		B	C		B
95th-Percentile Queue Length [veh/ln]	0.20	0.00	0.00	0.04	0.00	0.00	0.31	0.00	0.31	0.46	0.00	0.46
95th-Percentile Queue Length [ft/ln]	4.93	0.00	0.00	1.08	0.00	0.00	7.82	0.00	7.82	11.58	0.00	11.58
d_A, Approach Delay [s/veh]	1.17			0.33			11.62			18.74		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	2.13											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	53.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.165

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	50	295	190	78	237	13	35	370	72	141	197	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	26	1	41	18	34	66	29	0	1	45	67
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	321	191	119	255	47	101	399	72	142	242	87
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	87	52	32	69	13	27	108	19	38	65	24
Total Analysis Volume [veh/h]	56	347	206	129	276	51	109	431	78	153	262	94
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	438	553	387	406	436	422	443	477	382	401	416
Degree of Utilization, x	0.13	1.16	0.33	0.68	0.12	0.26	0.97	0.16	0.40	0.44	0.43

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.44	20.10	1.43	4.89	0.39	1.02	11.97	0.58	1.88	2.22	2.09
95th-Percentile Queue Length [ft]	10.90	502.52	35.86	122.21	9.85	25.48	299.34	14.48	46.95	55.43	52.36
Approach Delay [s/veh]	110.56		23.21			49.01			18.18		
Approach LOS	F		C			E			C		
Intersection Delay [s/veh]	53.59										
Intersection LOS	F										

GENERAL BUILDOUT (YEAR 2040) WITHOUT PROJECT

Westgrove Apartments

Vistro File: G:\...\AMGB_ALT1.vistro
Report File: G:\...\AMGB_ALT1.pdf

Scenario 1 General Buildout (Year 2040) Without Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.663	27.6	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	1.238	108.5	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.763	33.8	C
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.000	13.3	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.519	14.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	317	675	231	56	327	20	8	28	126	184	85	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	317	675	231	56	327	20	8	28	126	184	85	71
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	178	61	15	86	5	2	7	33	48	22	19
Total Analysis Volume [veh/h]	334	711	243	59	344	21	8	29	133	194	89	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	30	0	11	21	0	0	18	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	39	39	5	29	29	9	9	11	11	11
g / C, Green / Cycle	0.20	0.49	0.49	0.06	0.36	0.36	0.11	0.11	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.18	0.37	0.15	0.03	0.10	0.01	0.02	0.08	0.11	0.05	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1880	1615	1810	1729	1615
c, Capacity [veh/h]	362	933	793	119	1289	575	202	174	247	236	221
d1, Uniform Delay [s]	31.47	16.62	12.24	36.21	18.37	16.84	32.58	34.81	33.49	31.53	31.36
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.92	5.87	1.00	3.21	0.51	0.12	0.43	6.84	5.44	0.99	0.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.76	0.31	0.50	0.27	0.04	0.18	0.77	0.79	0.38	0.34
d, Delay for Lane Group [s/veh]	41.39	22.49	13.24	39.41	18.88	16.96	33.01	41.65	38.94	32.52	32.26
Lane Group LOS	D	C	B	D	B	B	C	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.83	10.30	2.43	1.16	2.13	0.25	0.64	2.69	3.78	1.53	1.29
50th-Percentile Queue Length [ft/ln]	170.73	257.42	60.74	28.93	53.28	6.18	15.99	67.34	94.44	38.37	32.19
95th-Percentile Queue Length [veh/ln]	11.12	15.56	4.37	2.08	3.84	0.45	1.15	4.85	6.80	2.76	2.32
95th-Percentile Queue Length [ft/ln]	277.88	388.98	109.34	52.08	95.91	11.13	28.78	121.22	169.99	69.07	57.94

Movement, Approach, & Intersection Results

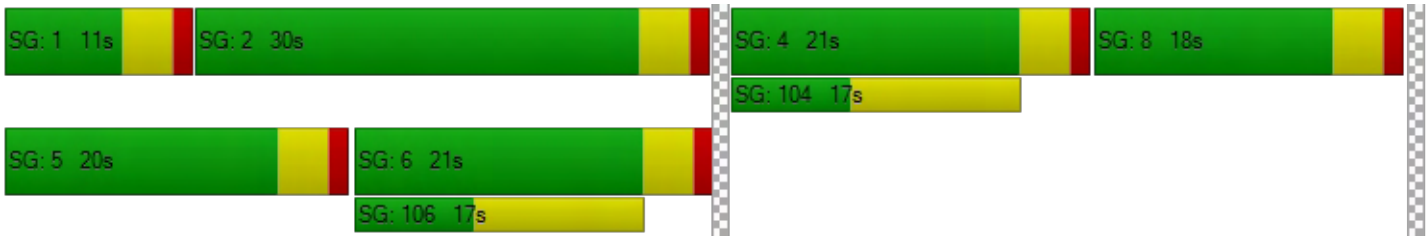
d_M, Delay for Movement [s/veh]	41.39	22.49	13.24	39.41	18.88	16.96	33.01	33.01	41.65	38.94	32.52	32.26
Movement LOS	D	C	B	D	B	B	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	25.65			21.64			39.77			35.94		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	27.61											
Intersection LOS	C											
Intersection V/C	0.663											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	29.76	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.041	2.349	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	425	350	425
d_b, Bicycle Delay [s]	18.23	24.81	27.23	24.81
l_b,int, Bicycle LOS Score for Intersection	3.685	1.909	1.840	1.855
Bicycle LOS	D	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	108.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.238

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	762	872	0	0	709	764	0	0	0	401	3	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	762	872	0	0	709	764	0	0	0	401	3	228
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	201	229	0	0	187	201	0	0	0	106	1	60
Total Analysis Volume [veh/h]	802	918	0	0	746	804	0	0	0	422	3	240
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	45	94	0	0	49	0	0	0	0	0	26	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	41	90	45	45		22	22
g / C, Green / Cycle	0.34	0.75	0.38	0.38		0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.44	0.25	0.14	0.50		0.23	0.15
s, saturation flow rate [veh/h]	1810	3618	5176	1615		1810	1615
c, Capacity [veh/h]	618	2712	1941	606		332	296
d1, Uniform Delay [s]	39.51	5.03	27.37	37.48		48.97	46.97
k, delay calibration	0.50	0.50	0.50	0.50		0.41	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	145.94	0.34	0.58	158.44		143.39	7.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.30	0.34	0.38	1.33		1.28	0.81
d, Delay for Lane Group [s/veh]	185.45	5.37	27.95	195.92		192.37	54.25
Lane Group LOS	F	A	C	F		F	D
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	42.28	3.06	5.12	43.40		23.13	7.46
50th-Percentile Queue Length [ft/ln]	1056.98	76.55	127.99	1084.93		578.27	186.45
95th-Percentile Queue Length [veh/ln]	61.95	5.51	8.83	64.39		34.84	11.94
95th-Percentile Queue Length [ft/ln]	1548.71	137.79	220.76	1609.72		871.03	298.42

Movement, Approach, & Intersection Results

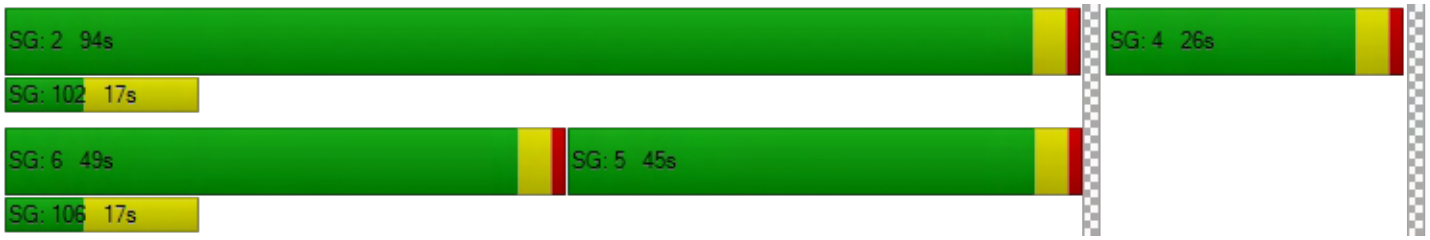
d_M, Delay for Movement [s/veh]	185.45	5.37	0.00	0.00	27.95	195.92	0.00	0.00	0.00	192.37	192.37	54.25
Movement LOS	F	A			C	F				F	F	D
d_A, Approach Delay [s/veh]	89.34			115.08			0.00			142.52		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	108.46											
Intersection LOS	F											
Intersection V/C	1.238											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.006	2.053
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1500	750	0	367
d_b, Bicycle Delay [s]	3.75	23.44	60.00	40.02
l_b,int, Bicycle LOS Score for Intersection	2.979	2.412	4.132	2.657
Bicycle LOS	C	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	33.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.763

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	985	371	111	798	0	715	3	554	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	985	371	111	798	0	715	3	554	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	259	98	29	210	0	188	1	146	0	0	0
Total Analysis Volume [veh/h]	0	1037	391	117	840	0	753	3	583	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	119.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	40	0	14	54	0	0	66	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	45	45	9	59	53	53	
g / C, Green / Cycle	0.38	0.38	0.08	0.49	0.44	0.44	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.24	0.06	0.23	0.42	0.36	
s, saturation flow rate [veh/h]	5176	1615	1810	3618	1810	1615	
c, Capacity [veh/h]	1948	608	143	1768	804	718	
d1, Uniform Delay [s]	29.16	30.76	54.38	20.41	31.78	28.96	
k, delay calibration	0.50	0.50	0.11	0.50	0.33	0.25	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.05	5.17	10.83	0.92	14.86	5.04	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.53	0.64	0.82	0.48	0.94	0.81	
d, Delay for Lane Group [s/veh]	30.20	35.93	65.22	21.33	46.64	34.00	
Lane Group LOS	C	D	E	C	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	7.63	9.76	3.82	7.60	23.60	15.25	
50th-Percentile Queue Length [ft/ln]	190.78	243.88	95.60	189.95	589.99	381.37	
95th-Percentile Queue Length [veh/ln]	12.16	14.88	6.88	12.12	31.57	21.66	
95th-Percentile Queue Length [ft/ln]	304.04	371.93	172.07	302.96	789.17	541.51	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	30.20	35.93	65.22	21.33	0.00	46.64	46.64	34.00	0.00	0.00	0.00
Movement LOS		C	D	E	C		D	D	C			
d_A, Approach Delay [s/veh]	31.77			26.69			41.14			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	33.83											
Intersection LOS	C											
Intersection V/C	0.763											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.381	1.935
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	833	1033	0
d_b, Bicycle Delay [s]	29.40	20.42	14.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.345	2.349	3.769	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	250	43	28	380	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	250	43	28	380	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	66	11	7	100	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	263	45	29	400	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	13.22	0.00	9.75	13.32	0.00	10.50	0.00	0.00	0.00	7.91	0.00	0.00
Movement LOS	B		A	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.03	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	0.85	0.00
d_A, Approach Delay [s/veh]	11.48			11.91			0.00			0.54		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.31											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	62	198	68	51	236	66	78	151	34	145	307	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	198	68	51	236	66	78	151	34	145	307	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	52	18	13	62	17	21	40	9	38	81	14
Total Analysis Volume [veh/h]	65	208	72	54	248	69	82	159	36	153	323	58
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	495	540	472	503	553	458	487	533	467	499	514
Degree of Utilization, x	0.13	0.52	0.11	0.49	0.12	0.18	0.33	0.07	0.33	0.38	0.37

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.45	2.97	0.38	2.69	0.43	0.65	1.41	0.22	1.41	1.77	1.70
95th-Percentile Queue Length [ft]	11.26	74.21	9.61	67.32	10.63	16.16	35.24	5.41	35.25	44.35	42.49
Approach Delay [s/veh]	15.37		14.65			12.77			14.07		
Approach LOS	C		B			B			B		
Intersection Delay [s/veh]	14.27										
Intersection LOS	B										

Westgrove Apartments

Vistro File: G:\...\PMGB_ALT1.vistro
Report File: G:\...\PMGB_ALT1.pdf

Scenario 1 General Buildout (Year 2040) Without Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.849	44.4	D
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	NB Left	1.190	108.2	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.942	49.9	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.000	16.8	C
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	EB Thru	1.343	93.8	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.849

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	142	382	404	108	821	24	18	138	332	381	89	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	382	404	108	821	24	18	138	332	381	89	82
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	101	106	28	216	6	5	36	87	100	23	22
Total Analysis Volume [veh/h]	149	402	425	114	864	25	19	145	349	401	94	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	11	26	0	11	26	0	0	21	0	0	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	23	23	6	22	22	17	17	18	18	18
g / C, Green / Cycle	0.09	0.28	0.28	0.08	0.28	0.28	0.21	0.21	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.26	0.06	0.24	0.02	0.09	0.22	0.22	0.05	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1889	1615	1810	1729	1615
c, Capacity [veh/h]	159	538	457	146	1000	446	399	341	407	389	363
d1, Uniform Delay [s]	36.30	26.09	27.91	36.08	27.54	21.29	27.28	31.58	30.89	25.42	25.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.14	0.15	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	21.21	9.15	27.68	8.59	9.86	0.24	0.68	32.02	21.15	0.32	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.75	0.93	0.78	0.86	0.06	0.41	1.02	0.98	0.24	0.24
d, Delay for Lane Group [s/veh]	57.51	35.24	55.60	44.67	37.40	21.53	27.96	63.60	52.03	25.74	25.73
Lane Group LOS	E	D	E	D	D	C	C	F	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.65	7.68	10.66	2.40	8.48	0.35	2.58	9.06	9.43	1.39	1.27
50th-Percentile Queue Length [ft/ln]	91.24	192.03	266.45	60.05	212.09	8.70	64.55	226.56	235.76	34.81	31.86
95th-Percentile Queue Length [veh/ln]	6.57	12.23	16.01	4.32	13.26	0.63	4.65	14.17	14.47	2.51	2.29
95th-Percentile Queue Length [ft/ln]	164.23	305.66	400.31	108.08	331.51	15.66	116.20	354.27	361.66	62.67	57.36

Movement, Approach, & Intersection Results

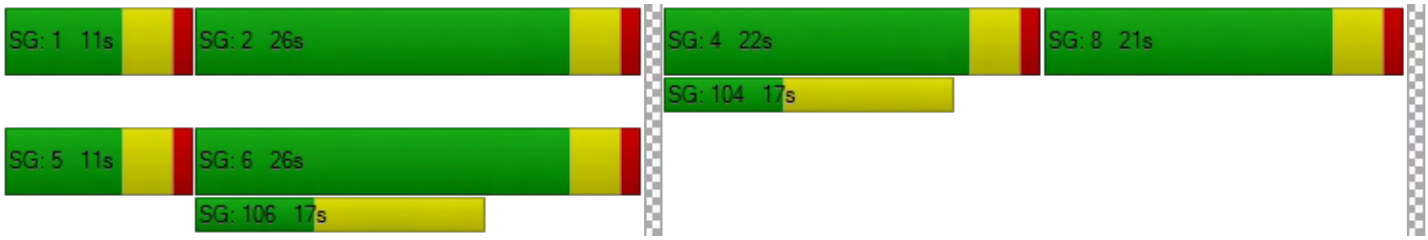
d_M, Delay for Movement [s/veh]	57.51	35.24	55.60	44.67	37.40	21.53	27.96	27.96	63.60	52.03	25.74	25.73
Movement LOS	E	D	E	D	D	C	C	C	F	D	C	C
d_A, Approach Delay [s/veh]	47.50			37.83			52.21			43.89		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.45											
Intersection LOS	D											
Intersection V/C	0.849											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	29.76	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.088	2.410	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	550	550	425	450
d_b, Bicycle Delay [s]	21.03	21.03	24.81	24.03
l_b,int, Bicycle LOS Score for Intersection	3.170	2.387	2.406	2.039
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	108.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.190

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	668	1061	0	0	477	723	0	0	0	464	10	413
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	668	1061	0	0	477	723	0	0	0	464	10	413
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	279	0	0	126	190	0	0	0	122	3	109
Total Analysis Volume [veh/h]	703	1117	0	0	502	761	0	0	0	488	11	435
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	44	97	0	0	53	0	0	0	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	130	130	130	130		130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	40	93	49	49		29	29
g / C, Green / Cycle	0.31	0.72	0.38	0.38		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.39	0.31	0.10	0.47		0.28	0.27
s, saturation flow rate [veh/h]	1810	3618	5176	1615		1811	1615
c, Capacity [veh/h]	556	2587	1951	609		404	360
d1, Uniform Delay [s]	44.99	7.62	27.93	40.48		50.47	50.47
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	132.43	0.53	0.32	125.72		125.18	116.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.26	0.43	0.26	1.25		1.23	1.21
d, Delay for Lane Group [s/veh]	177.43	8.15	28.25	166.20		175.65	166.85
Lane Group LOS	F	A	C	F		F	F
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	37.69	5.61	3.57	39.76		27.15	23.33
50th-Percentile Queue Length [ft/ln]	942.26	140.34	89.14	993.95		678.85	583.21
95th-Percentile Queue Length [veh/ln]	54.83	9.50	6.42	57.76		39.88	34.50
95th-Percentile Queue Length [ft/ln]	1370.67	237.48	160.44	1443.96		997.09	862.62

Movement, Approach, & Intersection Results

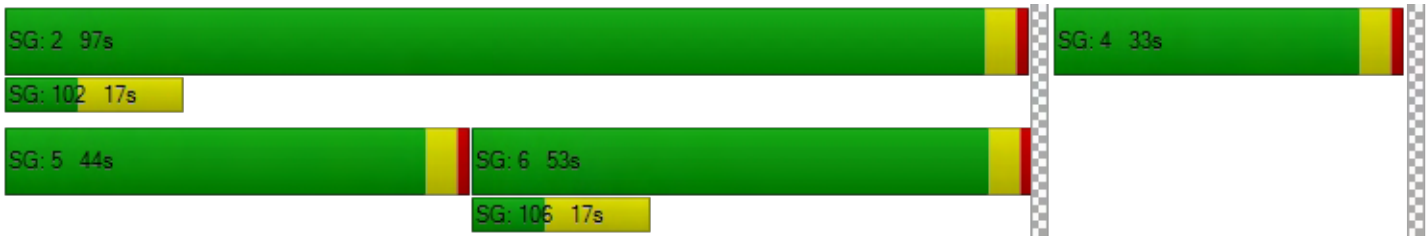
d_M, Delay for Movement [s/veh]	177.43	8.15	0.00	0.00	28.25	166.20	0.00	0.00	0.00	175.65	175.65	166.85
Movement LOS	F	A			C	F				F	F	F
d_A, Approach Delay [s/veh]	73.54			111.37			0.00			171.55		
Approach LOS	E			F			A			F		
d_I, Intersection Delay [s/veh]	108.22											
Intersection LOS	F											
Intersection V/C	1.190											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	54.47	54.47
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.879	2.188
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1431	754	0	446
d_b, Bicycle Delay [s]	5.27	25.23	65.00	39.23
l_b,int, Bicycle LOS Score for Intersection	3.061	2.254	4.132	3.101
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	49.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.942

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	1260	560	367	799	0	490	4	491	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1260	560	367	799	0	490	4	491	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	332	147	97	210	0	129	1	129	0	0	0
Total Analysis Volume [veh/h]	0	1326	589	386	841	0	516	4	517	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	86.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	52	0	32	84	0	0	46	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	130	130	130	130	130	130	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	48	48	28	80	42	42	
g / C, Green / Cycle	0.37	0.37	0.22	0.62	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.36	0.21	0.23	0.29	0.32	
s, saturation flow rate [veh/h]	5176	1615	1810	3618	1810	1615	
c, Capacity [veh/h]	1913	597	390	2228	584	521	
d1, Uniform Delay [s]	34.70	40.63	50.81	12.49	41.82	43.84	
k, delay calibration	0.50	0.50	0.39	0.50	0.38	0.46	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.09	33.75	38.09	0.49	14.72	35.90	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.69	0.99	0.99	0.38	0.89	0.99	
d, Delay for Lane Group [s/veh]	36.80	74.38	88.90	12.98	56.54	79.74	
Lane Group LOS	D	E	F	B	E	E	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	11.78	23.39	16.27	5.80	18.12	21.59	
50th-Percentile Queue Length [ft/ln]	294.47	584.83	406.80	144.99	452.91	539.74	
95th-Percentile Queue Length [veh/ln]	17.41	31.33	22.89	9.75	25.10	29.21	
95th-Percentile Queue Length [ft/ln]	435.18	783.13	572.19	243.72	627.42	730.24	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	36.80	74.38	88.90	12.98	0.00	56.54	56.54	79.74	0.00	0.00	0.00
Movement LOS		D	E	F	B		E	E	E			
d_A, Approach Delay [s/veh]	48.35			36.86			68.11			0.00		
Approach LOS	D			D			E			A		
d_I, Intersection Delay [s/veh]	49.88											
Intersection LOS	D											
Intersection V/C	0.942											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	54.47	54.47
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.238	2.396
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	738	1231	646	0
d_b, Bicycle Delay [s]	25.86	9.62	29.78	65.00
l_b,int, Bicycle LOS Score for Intersection	2.613	2.572	3.271	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	580	1	2	530	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0	0	580	1	2	530	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0	0	153	0	1	139	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0	0	611	1	2	558	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	16.80	0.00	12.24	16.82	0.00	11.75	0.00	0.00	0.00	8.69	0.00	0.00
Movement LOS	C		B	C		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.08	0.00
d_A, Approach Delay [s/veh]	14.52			14.29			0.00			0.03		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.01											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	93.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.343

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	91	393	204	154	346	78	112	538	78	151	341	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	393	204	154	346	78	112	538	78	151	341	47
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	103	54	41	91	21	29	142	21	40	90	12
Total Analysis Volume [veh/h]	96	414	215	162	364	82	118	566	82	159	359	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	463	629	385	403	431	403	566	451	366	384	389
Degree of Utilization, x	0.21	1.27	0.42	0.90	0.19	0.29	1.34	0.18	0.43	0.53	0.52

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.77	25.87	2.03	9.51	0.69	1.20	26.18	0.66	2.12	3.01	2.93
95th-Percentile Queue Length [ft]	19.33	646.78	50.84	237.83	17.35	30.09	654.55	16.43	53.10	75.19	73.25
Approach Delay [s/veh]	140.14		39.12			146.98			21.37		
Approach LOS	F		E			F			C		
Intersection Delay [s/veh]	93.81										
Intersection LOS	F										

GENERAL BUILDOUT (YEAR 2040) WITH PROJECT

Westgrove Apartments

Vistro File: G:\...\AMGB_ALT1.vistro
Report File: G:\...\AMGBp_ALT1.pdf

Scenario 2 General Buildout (Year 2040) With Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.690	28.9	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	SB Right	1.250	111.7	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.775	35.6	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.010	13.9	B
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.061	13.4	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.106	13.0	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.517	14.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	28.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	317	675	231	56	327	20	8	28	126	184	85	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	1	0	0	0	0	0	41	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	317	675	244	57	327	20	8	28	126	225	85	75
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	178	64	15	86	5	2	7	33	59	22	20
Total Analysis Volume [veh/h]	334	711	257	60	344	21	8	29	133	237	89	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	30	0	11	21	0	0	18	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	16	38	38	5	27	27	9	9	13	13	13
g / C, Green / Cycle	0.20	0.47	0.47	0.07	0.33	0.33	0.11	0.11	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.18	0.37	0.16	0.03	0.10	0.01	0.02	0.08	0.13	0.05	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1880	1615	1810	1729	1615
c, Capacity [veh/h]	362	889	756	119	1207	539	202	173	288	276	257
d1, Uniform Delay [s]	31.47	18.15	13.51	36.19	19.68	18.04	32.60	34.83	32.61	29.88	29.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.92	7.48	1.22	3.24	0.59	0.14	0.43	6.94	5.79	0.67	0.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.80	0.34	0.50	0.28	0.04	0.18	0.77	0.82	0.32	0.31
d, Delay for Lane Group [s/veh]	41.39	25.63	14.73	39.43	20.27	18.18	33.04	41.77	38.41	30.55	30.47
Lane Group LOS	D	C	B	D	C	B	C	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.83	11.20	2.77	1.18	2.24	0.26	0.64	2.70	4.60	1.47	1.31
50th-Percentile Queue Length [ft/ln]	170.73	280.09	69.35	29.43	55.88	6.48	16.00	67.46	114.95	36.84	32.67
95th-Percentile Queue Length [veh/ln]	11.12	16.69	4.99	2.12	4.02	0.47	1.15	4.86	8.11	2.65	2.35
95th-Percentile Queue Length [ft/ln]	277.88	417.33	124.83	52.97	100.58	11.67	28.80	121.44	202.86	66.31	58.80

Movement, Approach, & Intersection Results

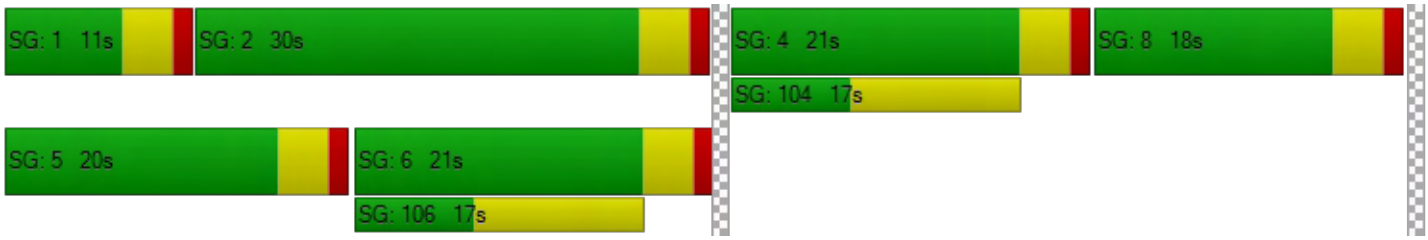
d_M, Delay for Movement [s/veh]	41.39	25.63	14.73	39.43	20.27	18.18	33.04	33.04	41.77	38.41	30.55	30.47
Movement LOS	D	C	B	D	C	B	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	27.52			22.87			39.87			35.13		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	28.91											
Intersection LOS	C											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	29.76	29.76	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.041	2.349	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	425	350	425
d_b, Bicycle Delay [s]	18.23	24.81	27.23	24.81
l_b,int, Bicycle LOS Score for Intersection	3.708	1.910	1.840	1.894
Bicycle LOS	D	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	111.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.250

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	762	872	0	0	709	764	0	0	0	401	3	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	19	22	0	0	0	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	762	881	0	0	728	786	0	0	0	401	3	232
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	201	232	0	0	192	207	0	0	0	106	1	61
Total Analysis Volume [veh/h]	802	927	0	0	766	827	0	0	0	422	3	244
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	46	98	0	0	52	0	0	0	0	0	27	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	125	125	125	125		125	125
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	42	94	48	48		23	23
g / C, Green / Cycle	0.34	0.75	0.38	0.38		0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.44	0.26	0.15	0.51		0.23	0.15
s, saturation flow rate [veh/h]	1810	3618	5176	1615		1810	1615
c, Capacity [veh/h]	607	2720	1988	620		333	297
d1, Uniform Delay [s]	41.51	5.17	27.81	38.48		50.97	48.98
k, delay calibration	0.50	0.50	0.50	0.50		0.43	0.18
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	155.54	0.34	0.57	160.69		142.56	8.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.32	0.34	0.39	1.33		1.27	0.82
d, Delay for Lane Group [s/veh]	197.05	5.52	28.38	199.16		193.53	57.87
Lane Group LOS	F	A	C	F		F	E
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	44.06	3.27	5.44	45.64		23.60	8.05
50th-Percentile Queue Length [ft/ln]	1101.53	81.87	136.10	1141.01		589.95	201.17
95th-Percentile Queue Length [veh/ln]	64.77	5.89	9.27	67.65		35.42	12.70
95th-Percentile Queue Length [ft/ln]	1619.37	147.37	231.76	1691.35		885.54	317.48

Movement, Approach, & Intersection Results

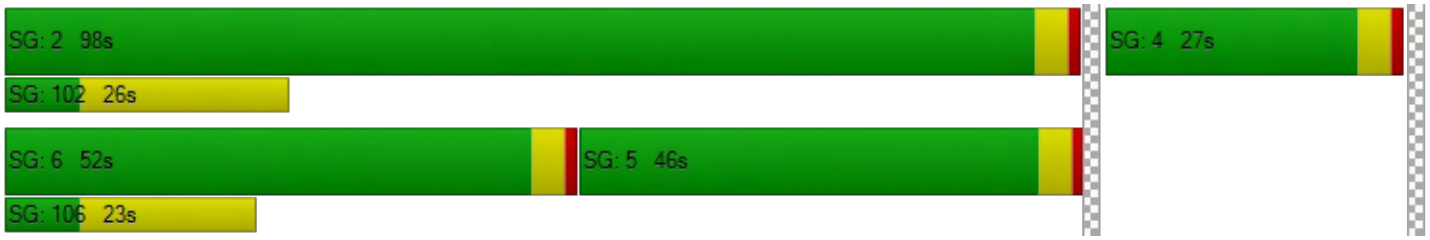
d_M, Delay for Movement [s/veh]	197.05	5.52	0.00	0.00	28.38	199.16	0.00	0.00	0.00	193.53	193.53	57.87
Movement LOS	F	A			C	F				F	F	E
d_A, Approach Delay [s/veh]	94.36			117.04			0.00			144.05		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	111.74											
Intersection LOS	F											
Intersection V/C	1.250											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.030	2.057
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1504	768	0	368
d_b, Bicycle Delay [s]	3.84	23.72	62.50	41.62
l_b,int, Bicycle LOS Score for Intersection	2.986	2.436	4.132	2.663
Bicycle LOS	C	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.775

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	985	371	111	798	0	715	3	554	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	15	4	0	8	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	986	371	126	802	0	723	3	554	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	259	98	33	211	0	190	1	146	0	0	0
Total Analysis Volume [veh/h]	0	1038	391	133	844	0	761	3	583	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	124.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	41	0	16	57	0	0	68	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	125	125	125	125	125	125	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	46	46	11	61	56	56	
g / C, Green / Cycle	0.37	0.37	0.09	0.49	0.45	0.45	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.24	0.07	0.23	0.42	0.36	
s, saturation flow rate [veh/h]	5176	1615	1810	3618	1810	1615	
c, Capacity [veh/h]	1909	596	159	1768	809	722	
d1, Uniform Delay [s]	31.11	32.82	56.10	21.30	33.02	29.86	
k, delay calibration	0.50	0.50	0.11	0.50	0.34	0.25	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.12	5.57	10.97	0.93	15.76	4.96	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.54	0.66	0.84	0.48	0.94	0.81	
d, Delay for Lane Group [s/veh]	32.23	38.39	67.07	22.22	48.78	34.83	
Lane Group LOS	C	D	E	C	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	8.14	10.39	4.52	8.04	25.08	15.86	
50th-Percentile Queue Length [ft/ln]	203.46	259.68	112.95	200.99	627.00	396.45	
95th-Percentile Queue Length [veh/ln]	12.82	15.67	8.00	12.69	33.29	22.39	
95th-Percentile Queue Length [ft/ln]	320.43	391.82	200.10	317.24	832.32	559.72	

Movement, Approach, & Intersection Results

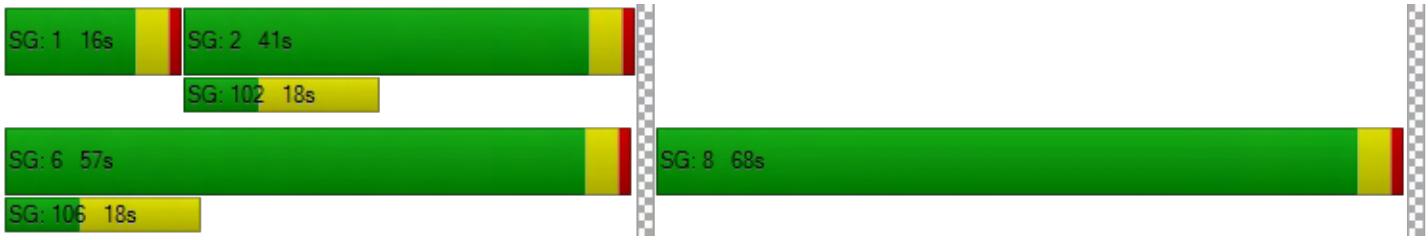
d_M, Delay for Movement [s/veh]	0.00	32.23	38.39	67.07	22.22	0.00	48.78	48.78	34.83	0.00	0.00	0.00
Movement LOS		C	D	E	C		D	D	C			
d_A, Approach Delay [s/veh]	33.92			28.33			42.74			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	35.63											
Intersection LOS	D											
Intersection V/C	0.775											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.387	1.953
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	592	848	1024	0
d_b, Bicycle Delay [s]	30.98	20.74	14.88	62.50
l_b,int, Bicycle LOS Score for Intersection	2.346	2.366	3.782	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	250	43	28	380	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	26	0	14	0	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	4	0	26	0	264	43	28	399	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	7	0	69	11	7	105	0
Total Analysis Volume [veh/h]	0	0	0	4	0	27	0	278	45	29	420	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	13.79	0.00	9.84	13.93	0.00	10.98	0.00	0.00	0.00	7.95	0.00	0.00
Movement LOS	B		A	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.16	0.00	0.16	0.00	0.00	0.00	0.07	0.03	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	4.10	0.00	4.10	0.00	0.00	0.00	1.72	0.86	0.00
d_A, Approach Delay [s/veh]	11.81			11.36			0.00			0.51		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.73											
Intersection LOS	B											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.061

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	0	0	315	435	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	27	19	14	4	0	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	19	14	319	435	13
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	5	4	84	114	3
Total Analysis Volume [veh/h]	28	20	15	336	458	14
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.03	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.39	11.19	8.32	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.10	0.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.88	2.58	1.04	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.47		0.36		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.83					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.106

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	331	14	4	332	0	0	0	0	51	0	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	339	14	4	335	0	0	0	0	51	0	14
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	89	4	1	88	0	0	0	0	13	0	4
Total Analysis Volume [veh/h]	0	357	15	4	353	0	0	0	0	54	0	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	Yes
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.02
d_M, Delay for Movement [s/veh]	7.96	0.00	0.00	8.02	0.00	0.00	12.09	0.00	9.27	12.99	0.00	10.25
Movement LOS	A	A	A	A	A	A	B		A	B		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.42
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00	10.56	0.00	10.56
d_A, Approach Delay [s/veh]	0.00			0.09			10.68			12.39		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.11											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	62	198	68	51	236	66	78	151	34	145	307	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	3	8	15	8	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	198	68	51	236	69	86	166	42	145	314	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	52	18	13	62	18	23	44	11	38	83	14
Total Analysis Volume [veh/h]	68	208	72	54	248	73	91	175	44	153	331	58
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	497	542	472	502	551	457	485	532	465	496	511
Degree of Utilization, x	0.14	0.52	0.11	0.49	0.13	0.20	0.36	0.08	0.33	0.39	0.38

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.47	2.95	0.38	2.70	0.45	0.73	1.62	0.27	1.42	1.84	1.77
95th-Percentile Queue Length [ft]	11.78	73.68	9.62	67.52	11.37	18.36	40.56	6.73	35.45	46.10	44.22
Approach Delay [s/veh]	15.24		14.65			13.14			14.26		
Approach LOS	C		B			B			B		
Intersection Delay [s/veh]	14.35										
Intersection LOS	B										

Westgrove Apartments

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Report File: G:\...\PMGBp_ALT1.pdf

Scenario 2 General Buildout (Year 2040) With Project
9/3/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Right	0.884	50.4	D
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	NB Left	1.203	110.7	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.950	51.2	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.010	17.8	C
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.065	18.2	C
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.090	16.5	C
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	EB Thru	1.370	94.5	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	50.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.884

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	142	382	404	108	821	24	18	138	332	381	89	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	38	4	0	0	0	0	0	26	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	382	442	112	821	24	18	138	332	407	89	84
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	101	116	29	216	6	5	36	87	107	23	22
Total Analysis Volume [veh/h]	149	402	465	118	864	25	19	145	349	428	94	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	30	0	11	29	0	0	24	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	26	26	7	25	25	20	20	21	21	21
g / C, Green / Cycle	0.09	0.29	0.29	0.08	0.28	0.28	0.22	0.22	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.29	0.07	0.24	0.02	0.09	0.22	0.24	0.05	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1889	1615	1810	1729	1615
c, Capacity [veh/h]	162	552	469	142	1011	451	416	356	422	403	377
d1, Uniform Delay [s]	40.71	28.76	31.85	40.95	30.73	23.76	29.98	34.92	34.54	28.00	28.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.19	0.24	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.64	8.20	39.47	11.90	9.20	0.23	0.61	25.22	33.71	0.29	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.73	0.99	0.83	0.85	0.06	0.39	0.98	1.01	0.23	0.23
d, Delay for Lane Group [s/veh]	59.36	36.97	71.32	52.85	39.93	23.99	30.58	60.14	68.25	28.29	28.32
Lane Group LOS	E	D	E	D	D	C	C	E	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.96	8.50	14.42	2.93	9.51	0.40	2.93	9.58	12.55	1.58	1.49
50th-Percentile Queue Length [ft/ln]	98.93	212.43	360.39	73.22	237.69	9.92	73.20	239.48	313.72	39.62	37.15
95th-Percentile Queue Length [veh/ln]	7.12	13.28	20.64	5.27	14.56	0.71	5.27	14.66	18.50	2.85	2.67
95th-Percentile Queue Length [ft/ln]	178.07	331.94	516.06	131.80	364.11	17.86	131.76	366.38	462.54	71.31	66.86

Movement, Approach, & Intersection Results

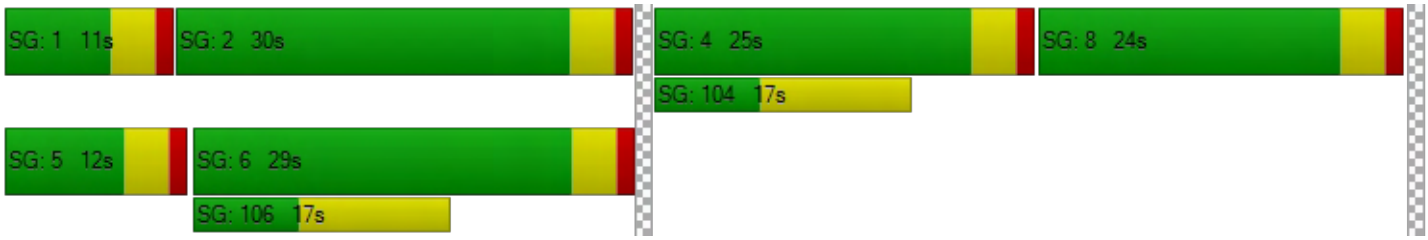
d_M, Delay for Movement [s/veh]	59.36	36.97	71.32	52.85	39.93	23.99	30.58	30.58	60.14	68.25	28.29	28.32
Movement LOS	E	D	E	D	D	C	C	C	E	F	C	C
d_A, Approach Delay [s/veh]	55.97			41.05			50.69			56.33		
Approach LOS	E			D			D			E		
d_I, Intersection Delay [s/veh]	50.40											
Intersection LOS	D											
Intersection V/C	0.884											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.095	2.416	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	556	444	467
d_b, Bicycle Delay [s]	22.76	23.47	27.22	26.45
l_b,int, Bicycle LOS Score for Intersection	3.236	2.390	2.406	2.063
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	110.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.203

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	668	1061	0	0	477	723	0	0	0	464	10	413
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	27	0	0	12	14	0	0	0	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	668	1088	0	0	489	737	0	0	0	464	10	424
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	286	0	0	129	194	0	0	0	122	3	112
Total Analysis Volume [veh/h]	703	1145	0	0	515	776	0	0	0	488	11	446
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	42	93	0	0	51	0	0	0	0	0	32	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	125	125	125	125		125	125
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	38	89	47	47		28	28
g / C, Green / Cycle	0.30	0.71	0.38	0.38		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.39	0.32	0.10	0.48		0.28	0.28
s, saturation flow rate [veh/h]	1810	3618	5176	1615		1811	1615
c, Capacity [veh/h]	550	2575	1946	607		406	362
d1, Uniform Delay [s]	43.49	7.59	27.02	38.99		48.48	48.48
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	138.83	0.56	0.33	137.54		123.06	126.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.28	0.44	0.26	1.28		1.23	1.23
d, Delay for Lane Group [s/veh]	182.32	8.15	27.35	176.53		171.54	174.81
Lane Group LOS	F	A	C	F		F	F
Critical Lane Group	Yes	No	No	Yes		No	Yes
50th-Percentile Queue Length [veh/ln]	37.48	5.59	3.51	40.80		26.46	23.92
50th-Percentile Queue Length [ft/ln]	937.00	139.75	87.75	1020.12		661.56	598.06
95th-Percentile Queue Length [veh/ln]	54.82	9.47	6.32	59.80		38.91	35.61
95th-Percentile Queue Length [ft/ln]	1370.44	236.69	157.96	1494.93		972.79	890.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	182.32	8.15	0.00	0.00	27.35	176.53	0.00	0.00	0.00	171.54	171.54	174.81
Movement LOS	F	A			C	F				F	F	F
d_A, Approach Delay [s/veh]	74.40			117.02			0.00			173.08		
Approach LOS	E			F			A			F		
d_I, Intersection Delay [s/veh]	110.71											
Intersection LOS	F											
Intersection V/C	1.203											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.892	2.191
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1424	752	0	448
d_b, Bicycle Delay [s]	5.18	24.34	62.50	37.64
l_b,int, Bicycle LOS Score for Intersection	3.084	2.270	4.132	3.119
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	51.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.950

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	1260	560	367	799	0	490	4	491	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	10	2	0	23	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1264	560	377	801	0	513	4	491	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	333	147	99	211	0	135	1	129	0	0	0
Total Analysis Volume [veh/h]	0	1331	589	397	843	0	540	4	517	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	125
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	82.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	49	0	32	81	0	0	44	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	125	125	125	125	125	125	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	45	45	28	77	40	40	
g / C, Green / Cycle	0.36	0.36	0.22	0.62	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.36	0.22	0.23	0.30	0.32	
s, saturation flow rate [veh/h]	5176	1615	1810	3618	1810	1615	
c, Capacity [veh/h]	1864	582	405	2229	579	516	
d1, Uniform Delay [s]	34.42	39.96	48.17	11.99	41.33	42.49	
k, delay calibration	0.50	0.50	0.39	0.50	0.42	0.46	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.37	40.49	34.51	0.49	22.27	38.43	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.71	1.01	0.98	0.38	0.94	1.00	
d, Delay for Lane Group [s/veh]	36.79	80.45	82.68	12.48	63.60	80.92	
Lane Group LOS	D	F	F	B	E	F	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	11.55	23.49	15.77	5.51	19.70	21.24	
50th-Percentile Queue Length [ft/ln]	288.63	587.34	394.30	137.87	492.45	530.96	
95th-Percentile Queue Length [veh/ln]	17.12	31.72	22.28	9.37	26.98	28.82	
95th-Percentile Queue Length [ft/ln]	427.94	793.11	557.12	234.15	674.42	720.59	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	36.79	80.45	82.68	12.48	0.00	63.60	63.60	80.92	0.00	0.00	0.00
Movement LOS		D	F	F	B		E	E	F			
d_A, Approach Delay [s/veh]	50.18			34.96			72.04			0.00		
Approach LOS	D			C			E			A		
d_I, Intersection Delay [s/veh]	51.20											
Intersection LOS	D											
Intersection V/C	0.950											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	51.98	51.98
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.248	2.404
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	720	1232	640	0
d_b, Bicycle Delay [s]	25.60	9.22	28.90	62.50
l_b,int, Bicycle LOS Score for Intersection	2.616	2.583	3.310	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	17.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	580	1	2	530	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	3	0	16	0	42	0	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	3	0	16	0	622	1	2	542	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	4	0	164	0	1	143	0
Total Analysis Volume [veh/h]	0	0	0	3	0	17	0	655	1	2	571	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	17.65	0.00	12.67	17.78	0.00	12.21	0.00	0.00	0.00	8.83	0.00	0.00
Movement LOS	C		B	C		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.13	0.00	0.13	0.00	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.35	0.00	3.35	0.00	0.00	0.00	0.16	0.08	0.00
d_A, Approach Delay [s/veh]	15.16			13.05			0.00			0.03		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	0.22											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	0	0	650	552	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	12	42	3	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	12	42	653	552	35
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	3	11	172	145	9
Total Analysis Volume [veh/h]	19	13	44	687	581	37
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.03	0.05	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	18.19	12.32	8.88	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.21	0.08	0.14	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	5.19	1.98	3.55	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.80		0.53		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.65					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.090

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	0	530	52	15	578	0	0	0	0	29	0	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	8	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	535	52	15	586	0	0	0	0	29	0	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	141	14	4	154	0	0	0	0	8	0	2
Total Analysis Volume [veh/h]	0	563	55	16	617	0	0	0	0	31	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			Yes	Yes
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.09	0.00	0.01
d_M, Delay for Movement [s/veh]	8.70	0.00	0.00	8.77	0.00	0.00	15.93	0.00	10.19	16.54	0.00	11.26
Movement LOS	A	A	A	A	A	A	C		B	C		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.34
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	1.25	0.00	0.00	0.00	0.00	0.00	8.43	0.00	8.43
d_A, Approach Delay [s/veh]	0.00			0.22			13.06			15.45		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	0.58											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	94.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.370

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	91	393	204	154	346	78	112	538	78	151	341	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	8	5	10	5	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	393	204	154	346	86	117	548	83	151	360	47
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	103	54	41	91	23	31	144	22	40	95	12
Total Analysis Volume [veh/h]	104	414	215	162	364	91	123	577	87	159	379	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	466	629	384	401	429	402	577	451	366	383	389
Degree of Utilization, x	0.22	1.26	0.42	0.91	0.21	0.31	1.37	0.19	0.43	0.56	0.55

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.85	25.48	2.04	9.59	0.79	1.27	27.37	0.71	2.13	3.28	3.20
95th-Percentile Queue Length [ft]	21.13	637.11	51.11	239.82	19.83	31.84	684.31	17.67	53.13	82.12	80.06
Approach Delay [s/veh]	134.90		39.28			153.99			22.17		
Approach LOS	F		E			F			C		
Intersection Delay [s/veh]	94.46										
Intersection LOS	F										

GENERAL BUILDOUT (YEAR 2040) WITH PROJECT

WITH RECIPRICAL ACCESS

Westgrove Apartments

Vistro File: G:\...\AMGB_ALT2.vistro
Report File: G:\...\AMGBp_ALT2.pdf

Scenario 2 General Buildout (Year 2040) With Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Right	0.695	28.5	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	1.273	117.0	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.777	34.5	C
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.010	13.9	B
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.033	13.3	B
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.152	16.9	C
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	SB Thru	0.519	14.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	317	675	231	56	327	20	8	28	126	184	85	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	1	0	0	0	0	0	41	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	317	675	244	57	327	20	8	28	126	225	85	75
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	178	64	15	86	5	2	7	33	59	22	20
Total Analysis Volume [veh/h]	334	711	257	60	344	21	8	29	133	237	89	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	19	29	0	11	21	0	0	14	0	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	34	34	5	24	24	8	8	12	12	12
g / C, Green / Cycle	0.20	0.45	0.45	0.07	0.32	0.32	0.11	0.11	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.18	0.37	0.16	0.03	0.10	0.01	0.02	0.08	0.13	0.05	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1880	1615	1810	1729	1615
c, Capacity [veh/h]	362	854	726	124	1149	513	202	174	293	280	261
d1, Uniform Delay [s]	29.52	18.23	13.56	33.77	19.36	17.75	30.55	32.64	30.41	27.86	27.78
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.92	9.34	1.35	2.92	0.67	0.15	0.43	6.83	5.29	0.65	0.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.83	0.35	0.48	0.30	0.04	0.18	0.76	0.81	0.32	0.30
d, Delay for Lane Group [s/veh]	39.44	27.57	14.92	36.69	20.03	17.90	30.98	39.47	35.70	28.50	28.42
Lane Group LOS	D	C	B	D	C	B	C	D	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.37	11.17	2.68	1.09	2.13	0.25	0.59	2.51	4.23	1.36	1.20
50th-Percentile Queue Length [ft/ln]	159.37	279.31	67.06	27.17	53.27	6.20	14.82	62.84	105.82	33.96	30.12
95th-Percentile Queue Length [veh/ln]	10.52	16.65	4.83	1.96	3.84	0.45	1.07	4.52	7.61	2.45	2.17
95th-Percentile Queue Length [ft/ln]	262.89	416.35	120.71	48.90	95.89	11.16	26.67	113.10	190.17	61.13	54.21

Movement, Approach, & Intersection Results

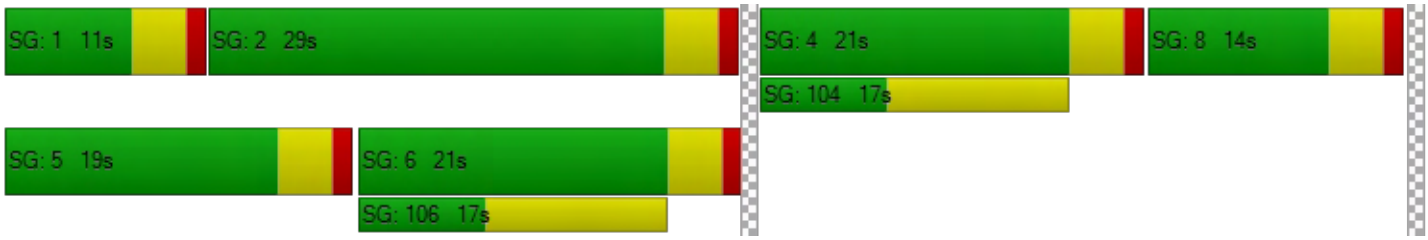
d_M, Delay for Movement [s/veh]	39.44	27.57	14.92	36.69	20.03	17.90	30.98	30.98	39.47	35.70	28.50	28.42
Movement LOS	D	C	B	D	C	B	C	C	D	D	C	C
d_A, Approach Delay [s/veh]	28.11			22.28			37.62			32.70		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.55											
Intersection LOS	C											
Intersection V/C	0.695											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	27.31	27.31	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.038	2.346	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	453	267	453
d_b, Bicycle Delay [s]	16.67	22.43	28.17	22.43
l_b,int, Bicycle LOS Score for Intersection	3.708	1.910	1.840	1.894
Bicycle LOS	D	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	117.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.273

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	762	872	0	0	709	793	0	0	0	401	3	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	19	22	0	0	0	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	762	881	0	0	728	815	0	0	0	401	3	232
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	201	232	0	0	192	214	0	0	0	106	1	61
Total Analysis Volume [veh/h]	802	927	0	0	766	858	0	0	0	422	3	244
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	44	95	0	0	51	0	0	0	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	120	120	120	120		120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	40	91	47	47		21	21
g / C, Green / Cycle	0.33	0.76	0.39	0.39		0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.44	0.26	0.15	0.53		0.23	0.15
s, saturation flow rate [veh/h]	1810	3618	5176	1615		1810	1615
c, Capacity [veh/h]	603	2743	2027	633		317	283
d1, Uniform Delay [s]	40.00	4.72	26.05	36.49		49.47	48.07
k, delay calibration	0.50	0.50	0.50	0.50		0.41	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	159.93	0.33	0.54	170.57		169.47	10.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.33	0.34	0.38	1.36		1.34	0.86
d, Delay for Lane Group [s/veh]	199.93	5.05	26.59	207.06		218.94	58.93
Lane Group LOS	F	A	C	F		F	E
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	43.64	2.93	5.11	47.35		24.39	7.93
50th-Percentile Queue Length [ft/ln]	1091.02	73.19	127.72	1183.64		609.76	198.16
95th-Percentile Queue Length [veh/ln]	64.40	5.27	8.82	70.60		37.07	12.54
95th-Percentile Queue Length [ft/ln]	1609.98	131.73	220.39	1764.95		926.66	313.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	199.93	5.05	0.00	0.00	26.59	207.06	0.00	0.00	0.00	218.94	218.94	58.93
Movement LOS	F	A			C	F				F	F	E
d_A, Approach Delay [s/veh]	95.45			121.94			0.00			160.58		
Approach LOS	F			F			A			F		
d_I, Intersection Delay [s/veh]	116.98											
Intersection LOS	F											
Intersection V/C	1.273											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	3.059	2.055
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1517	783	0	350
d_b, Bicycle Delay [s]	3.50	22.20	60.00	40.84
l_b,int, Bicycle LOS Score for Intersection	2.986	2.453	4.132	2.663
Bicycle LOS	C	B	D	B

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	34.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.777

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	985	371	111	798	0	715	3	554	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	15	4	0	8	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	986	371	126	802	0	723	3	554	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	259	98	33	211	0	190	1	146	0	0	0
Total Analysis Volume [veh/h]	0	1038	391	133	844	0	761	3	583	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	120
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	1.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	39	0	15	54	0	0	66	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	120	120	120	120	120	120	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	44	44	11	58	54	54	
g / C, Green / Cycle	0.36	0.36	0.09	0.48	0.45	0.45	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.24	0.07	0.23	0.42	0.36	
s, saturation flow rate [veh/h]	5176	1615	1810	3618	1810	1615	
c, Capacity [veh/h]	1880	587	160	1754	812	724	
d1, Uniform Delay [s]	30.41	32.08	53.81	20.76	31.56	28.54	
k, delay calibration	0.50	0.50	0.11	0.50	0.34	0.25	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	1.17	5.90	10.69	0.95	15.16	4.79	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.55	0.67	0.83	0.48	0.94	0.80	
d, Delay for Lane Group [s/veh]	31.59	37.98	64.50	21.71	46.72	33.33	
Lane Group LOS	C	D	E	C	D	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	7.85	10.07	4.32	7.72	23.89	15.09	
50th-Percentile Queue Length [ft/ln]	196.17	251.78	108.11	193.08	597.26	377.26	
95th-Percentile Queue Length [veh/ln]	12.44	15.28	7.73	12.28	31.91	21.46	
95th-Percentile Queue Length [ft/ln]	311.02	381.90	193.36	307.03	797.66	536.53	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	31.59	37.98	64.50	21.71	0.00	46.72	46.72	33.33	0.00	0.00	0.00
Movement LOS		C	D	E	C		D	D	C			
d_A, Approach Delay [s/veh]	33.34			27.54			40.92			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	34.55											
Intersection LOS	C											
Intersection V/C	0.777											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.385	1.951
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	583	833	1033	0
d_b, Bicycle Delay [s]	30.10	20.42	14.02	60.00
l_b,int, Bicycle LOS Score for Intersection	2.346	2.366	3.782	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	250	43	28	380	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	26	0	14	0	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	4	0	26	0	264	43	28	399	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	7	0	69	11	7	105	0
Total Analysis Volume [veh/h]	0	0	0	4	0	27	0	278	45	29	420	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	13.79	0.00	9.84	13.93	0.00	10.98	0.00	0.00	0.00	7.95	0.00	0.00
Movement LOS	B		A	B		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.16	0.00	0.16	0.00	0.00	0.00	0.07	0.03	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	4.10	0.00	4.10	0.00	0.00	0.00	1.72	0.86	0.00
d_A, Approach Delay [s/veh]	11.81			11.36			0.00			0.51		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	0.73											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	25	9	315	435	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	19	14	4	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	44	23	319	435	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	12	6	84	114	2
Total Analysis Volume [veh/h]	15	46	24	336	458	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.08	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.28	11.45	8.33	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.25	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.58	6.16	1.66	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.90		0.56		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.04					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.152

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	21	331	14	4	332	3	10	0	58	51	0	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	2	0	0	1	2	6	0	8	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	333	14	4	333	5	16	0	66	51	0	14
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9200	0.9500	0.9500	0.9200	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	88	4	1	88	1	4	0	17	13	0	4
Total Analysis Volume [veh/h]	25	351	15	4	351	5	17	0	69	54	0	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.08	0.15	0.00	0.02
d_M, Delay for Movement [s/veh]	8.03	0.00	0.00	8.00	0.00	0.00	15.16	0.00	10.05	16.94	0.00	11.12
Movement LOS	A	A	A	A	A	A	C		B	C		B
95th-Percentile Queue Length [veh/ln]	0.06	0.00	0.00	0.01	0.00	0.00	0.43	0.00	0.43	0.61	0.00	0.61
95th-Percentile Queue Length [ft/ln]	1.58	0.00	0.00	0.25	0.00	0.00	10.79	0.00	10.79	15.15	0.00	15.15
d_A, Approach Delay [s/veh]	0.51			0.09			11.06			15.68		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	2.50											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	62	198	68	88	236	82	78	151	34	145	307	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	8	1	2	15	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	201	68	88	244	83	80	166	34	145	314	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	53	18	23	64	22	21	44	9	38	83	14
Total Analysis Volume [veh/h]	65	212	72	93	257	87	84	175	36	153	331	58
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	503	547	469	498	548	461	488	535	462	492	506
Degree of Utilization, x	0.13	0.52	0.20	0.52	0.16	0.18	0.36	0.07	0.33	0.40	0.38

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.44	2.97	0.73	2.91	0.56	0.66	1.61	0.22	1.43	1.87	1.79
95th-Percentile Queue Length [ft]	11.06	74.35	18.28	72.77	14.04	16.52	40.20	5.39	35.81	46.67	44.78
Approach Delay [s/veh]	15.20		14.91			13.08			14.41		
Approach LOS	C		B			B			B		
Intersection Delay [s/veh]	14.47										
Intersection LOS	B										

Westgrove Apartments

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Report File: G:\...\PMGBp_ALT2.pdf

Scenario 2 General Buildout (Year 2040) With Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Right	0.884	50.4	D
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	1.205	112.2	F
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.953	52.7	D
4	Project West Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.010	17.8	C
5	Project East Driveway (NS) at Lugonia Avenue (EW)	Two-way stop	HCM 6th Edition	SB Left	0.033	18.6	C
6	Nevada Street (NS) at Project North Driveway (EW)	Two-way stop	HCM 6th Edition	WB Left	0.199	33.3	D
7	Nevada Street (NS) at Lugonia Avenue (EW)	All-way stop	HCM 6th Edition	EB Thru	1.412	105.6	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	50.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.884

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	142	382	404	108	821	24	18	138	332	381	89	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	38	4	0	0	0	0	0	26	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	382	442	112	821	24	18	138	332	407	89	84
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	101	116	29	216	6	5	36	87	107	23	22
Total Analysis Volume [veh/h]	149	402	465	118	864	25	19	145	349	428	94	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Split	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	12	30	0	11	29	0	0	24	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	26	26	7	25	25	20	20	21	21	21
g / C, Green / Cycle	0.09	0.29	0.29	0.08	0.28	0.28	0.22	0.22	0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.29	0.07	0.24	0.02	0.09	0.22	0.24	0.05	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1889	1615	1810	1729	1615
c, Capacity [veh/h]	162	552	469	142	1011	451	416	356	422	403	377
d1, Uniform Delay [s]	40.71	28.76	31.85	40.95	30.73	23.76	29.98	34.92	34.54	28.00	28.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.19	0.24	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.64	8.20	39.47	11.90	9.20	0.23	0.61	25.22	33.71	0.29	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.73	0.99	0.83	0.85	0.06	0.39	0.98	1.01	0.23	0.23
d, Delay for Lane Group [s/veh]	59.36	36.97	71.32	52.85	39.93	23.99	30.58	60.14	68.25	28.29	28.32
Lane Group LOS	E	D	E	D	D	C	C	E	F	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.96	8.50	14.42	2.93	9.51	0.40	2.93	9.58	12.55	1.58	1.49
50th-Percentile Queue Length [ft/ln]	98.93	212.43	360.39	73.22	237.69	9.92	73.20	239.48	313.72	39.62	37.15
95th-Percentile Queue Length [veh/ln]	7.12	13.28	20.64	5.27	14.56	0.71	5.27	14.66	18.50	2.85	2.67
95th-Percentile Queue Length [ft/ln]	178.07	331.94	516.06	131.80	364.11	17.86	131.76	366.38	462.54	71.31	66.86

Movement, Approach, & Intersection Results

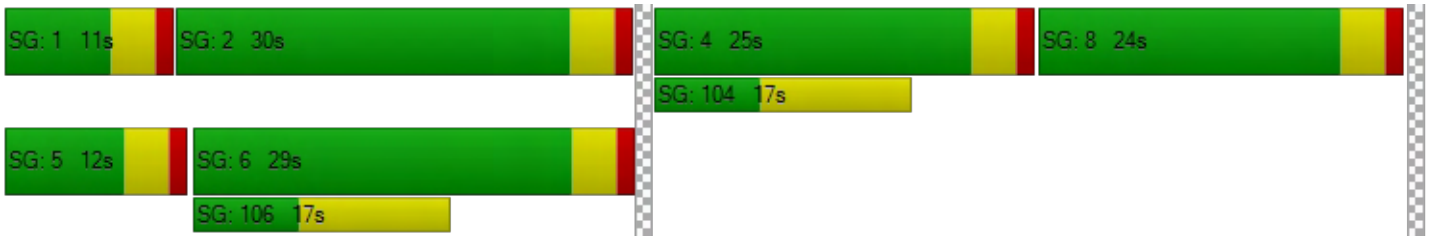
d_M, Delay for Movement [s/veh]	59.36	36.97	71.32	52.85	39.93	23.99	30.58	30.58	60.14	68.25	28.29	28.32
Movement LOS	E	D	E	D	D	C	C	C	E	F	C	C
d_A, Approach Delay [s/veh]	55.97			41.05			50.69			56.33		
Approach LOS	E			D			D			E		
d_I, Intersection Delay [s/veh]	50.40											
Intersection LOS	D											
Intersection V/C	0.884											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.095	2.416	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	556	444	467
d_b, Bicycle Delay [s]	22.76	23.47	27.22	26.45
l_b,int, Bicycle LOS Score for Intersection	3.236	2.390	2.406	2.063
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	112.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.205

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	668	1061	0	0	477	723	0	0	0	472	10	413
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	27	0	0	12	14	0	0	0	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	668	1088	0	0	489	737	0	0	0	472	10	424
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	286	0	0	129	194	0	0	0	124	3	112
Total Analysis Volume [veh/h]	703	1145	0	0	515	776	0	0	0	497	11	446
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	44	97	0	0	53	0	0	0	0	0	33	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	19	0	0	16	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R		C	R
C, Cycle Length [s]	130	130	130	130		130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00		2.00	2.00
g_i, Effective Green Time [s]	40	93	49	49		29	29
g / C, Green / Cycle	0.31	0.72	0.38	0.38		0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.39	0.32	0.10	0.48		0.28	0.28
s, saturation flow rate [veh/h]	1810	3618	5176	1615		1811	1615
c, Capacity [veh/h]	556	2587	1951	609		404	360
d1, Uniform Delay [s]	44.99	7.71	28.01	40.48		50.47	50.47
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00
d2, Incremental Delay [s]	132.43	0.55	0.33	136.04		134.21	128.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00

Lane Group Results

X, volume / capacity	1.26	0.44	0.26	1.27		1.26	1.24
d, Delay for Lane Group [s/veh]	177.43	8.26	28.34	176.52		184.68	178.93
Lane Group LOS	F	A	C	F		F	F
Critical Lane Group	Yes	No	No	Yes		Yes	No
50th-Percentile Queue Length [veh/ln]	37.69	5.82	3.67	41.50		28.17	24.54
50th-Percentile Queue Length [ft/ln]	942.26	145.52	91.71	1037.60		704.19	613.44
95th-Percentile Queue Length [veh/ln]	54.83	9.78	6.60	60.66		41.53	36.48
95th-Percentile Queue Length [ft/ln]	1370.67	244.44	165.07	1516.45		1038.20	912.02

Movement, Approach, & Intersection Results

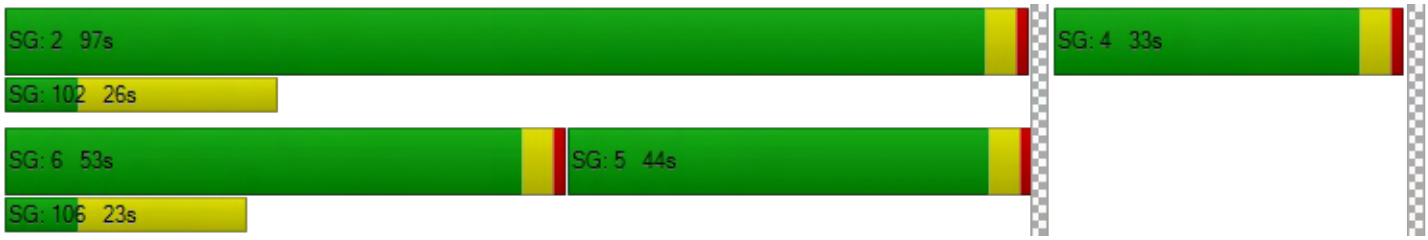
d_M, Delay for Movement [s/veh]	177.43	8.26	0.00	0.00	28.34	176.52	0.00	0.00	0.00	184.68	184.68	178.93
Movement LOS	F	A			C	F				F	F	F
d_A, Approach Delay [s/veh]	72.61			117.41			0.00			181.99		
Approach LOS	E			F			A			F		
d_I, Intersection Delay [s/veh]	112.24											
Intersection LOS	F											
Intersection V/C	1.205											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	54.47	54.47
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.894	2.198
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1431	754	0	446
d_b, Bicycle Delay [s]	5.27	25.23	65.00	39.23
l_b,int, Bicycle LOS Score for Intersection	3.084	2.270	4.132	3.134
Bicycle LOS	C	B	D	C

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	52.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.953

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	1260	566	367	799	0	490	4	491	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	10	2	0	23	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1264	566	377	801	0	513	4	491	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	333	149	99	211	0	135	1	129	0	0	0
Total Analysis Volume [veh/h]	0	1331	596	397	843	0	540	4	517	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	130
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	101.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	52	0	33	85	0	0	45	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	11	0	0	11	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	R	
C, Cycle Length [s]	130	130	130	130	130	130	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	48	48	29	81	41	41	
g / C, Green / Cycle	0.37	0.37	0.22	0.62	0.32	0.32	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.37	0.22	0.23	0.30	0.32	
s, saturation flow rate [veh/h]	5176	1615	1810	3618	1810	1615	
c, Capacity [veh/h]	1912	597	404	2255	570	509	
d1, Uniform Delay [s]	34.76	40.92	50.21	12.01	43.57	44.49	
k, delay calibration	0.50	0.50	0.41	0.50	0.43	0.47	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	2.12	36.54	36.84	0.48	25.25	43.01	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.70	1.00	0.98	0.37	0.95	1.02	
d, Delay for Lane Group [s/veh]	36.88	77.46	87.06	12.48	68.82	87.50	
Lane Group LOS	D	E	F	B	E	F	
Critical Lane Group	No	Yes	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	11.84	24.19	16.58	5.66	20.98	22.29	
50th-Percentile Queue Length [ft/ln]	296.05	604.78	414.53	141.58	524.52	557.32	
95th-Percentile Queue Length [veh/ln]	17.49	32.26	23.26	9.57	28.49	30.37	
95th-Percentile Queue Length [ft/ln]	437.14	806.44	581.48	239.16	712.32	759.15	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	36.88	77.46	87.06	12.48	0.00	68.82	68.82	87.50	0.00	0.00	0.00
Movement LOS		D	E	F	B		E	E	F			
d_A, Approach Delay [s/veh]	49.43			36.36			77.92			0.00		
Approach LOS	D			D			E			A		
d_I, Intersection Delay [s/veh]	52.75											
Intersection LOS	D											
Intersection V/C	0.953											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	54.47	54.47
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.250	2.413
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	738	1246	631	0
d_b, Bicycle Delay [s]	25.86	9.23	30.47	65.00
l_b,int, Bicycle LOS Score for Intersection	2.619	2.583	3.310	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 4: Project West Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	17.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			25.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name				Project West Driveway			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	580	1	2	530	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	3	0	16	0	42	0	0	12	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	3	0	16	0	622	1	2	542	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	1	0	4	0	164	0	1	143	0
Total Analysis Volume [veh/h]	0	0	0	3	0	17	0	655	1	2	571	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	17.65	0.00	12.67	17.78	0.00	12.21	0.00	0.00	0.00	8.83	0.00	0.00
Movement LOS	C		B	C		B		A	A	A	A	
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.13	0.00	0.13	0.00	0.00	0.00	0.01	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	3.35	0.00	3.35	0.00	0.00	0.00	0.16	0.08	0.00
d_A, Approach Delay [s/veh]	15.16			13.05			0.00			0.03		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	0.22											
Intersection LOS	C											

Intersection Level Of Service Report

Intersection 5: Project East Driveway (NS) at Lugonia Avenue (EW)

Control Type:	Two-way stop	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	Project East Driveway		Lugonia Avenue		Lugonia Avenue	
Base Volume Input [veh/h]	0	15	25	650	552	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	12	42	3	0	21
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	27	67	653	552	21
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	7	18	172	145	6
Total Analysis Volume [veh/h]	9	28	71	687	581	22
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.07	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	18.56	12.47	8.94	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.17	0.23	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.53	4.34	5.82	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.95		0.84		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.82					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 6: Nevada Street (NS) at Project North Driveway (EW)

Control Type:	Two-way stop	Delay (sec / veh):	33.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.199

Intersection Setup

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Project North Driveway			Project North Driveway		
Base Volume Input [veh/h]	60	530	52	15	578	10	6	0	37	29	0	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	2	0	0	2	6	4	0	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	532	52	15	580	16	10	0	42	29	0	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	140	14	4	153	4	3	0	11	8	0	2
Total Analysis Volume [veh/h]	72	560	55	16	611	17	11	0	44	31	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	1	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.01	0.00	0.02	0.01	0.00	0.07	0.00	0.06	0.20	0.00	0.01
d_M, Delay for Movement [s/veh]	9.04	0.00	0.00	8.76	0.00	0.00	28.47	0.00	11.54	33.28	0.00	15.31
Movement LOS	A	A	A	A	A	A	D		B	D		C
95th-Percentile Queue Length [veh/ln]	0.24	0.00	0.00	0.05	0.00	0.00	0.45	0.00	0.45	0.77	0.00	0.77
95th-Percentile Queue Length [ft/ln]	6.04	0.00	0.00	1.25	0.00	0.00	11.26	0.00	11.26	19.23	0.00	19.23
d_A, Approach Delay [s/veh]	0.95			0.22			14.92			29.60		
Approach LOS	A			A			B			D		
d_I, Intersection Delay [s/veh]	1.94											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	All-way stop	Delay (sec / veh):	105.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.412

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	91	393	204	154	346	78	112	538	78	151	341	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	5	2	2	10	0	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	401	204	154	351	80	114	548	78	151	360	88
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	106	54	41	92	21	30	144	21	40	95	23
Total Analysis Volume [veh/h]	96	422	215	162	369	84	120	577	82	159	379	93
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	450	637	379	396	423	391	577	437	363	379	389
Degree of Utilization, x	0.21	1.33	0.43	0.93	0.20	0.31	1.41	0.19	0.44	0.62	0.61

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.80	28.08	2.08	10.19	0.73	1.28	28.61	0.68	2.16	4.04	3.86
95th-Percentile Queue Length [ft]	19.99	702.03	52.01	254.64	18.26	32.02	715.33	17.09	54.02	100.99	96.42
Approach Delay [s/veh]	160.53		42.82			169.29			24.50		
Approach LOS	F		E			F			C		
Intersection Delay [s/veh]	105.63										
Intersection LOS	F										

WITH IMPROVEMENTS

EXISTING PLUS PROJECT

WITH IMPROVEMENTS

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	19.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.363

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	56	111	62	19	183	24	9	67	18	132	170	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	3	8	15	8	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	59	111	62	19	183	27	17	82	26	132	177	14
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	31	18	5	52	8	5	23	7	37	50	4
Total Analysis Volume [veh/h]	67	126	70	22	208	31	19	93	30	150	201	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	11	21	0	12	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	40	33	40	31	31	2	6	6	7	11	11
g / C, Green / Cycle	0.61	0.51	0.61	0.47	0.47	0.03	0.10	0.10	0.11	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.05	0.12	0.02	0.12	0.02	0.01	0.05	0.02	0.09	0.06	0.06
s, saturation flow rate [veh/h]	1286	1693	1263	1800	1530	1714	1800	1530	1714	1800	1754
c, Capacity [veh/h]	853	861	844	843	717	58	175	149	191	315	307
d1, Uniform Delay [s]	5.43	8.91	5.26	10.42	9.41	30.83	28.05	27.13	28.25	23.66	23.67
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	0.61	0.01	0.70	0.11	3.29	2.49	0.66	7.01	0.66	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.23	0.03	0.25	0.04	0.33	0.53	0.20	0.79	0.35	0.35
d, Delay for Lane Group [s/veh]	5.61	9.52	5.27	11.12	9.52	34.12	30.53	27.79	35.27	24.31	24.36
Lane Group LOS	A	A	A	B	A	C	C	C	D	C	C
Critical Lane Group	Yes	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.29	1.32	0.08	1.58	0.21	0.32	1.37	0.42	2.43	1.38	1.36
50th-Percentile Queue Length [ft/ln]	7.18	32.94	2.03	39.42	5.32	8.01	34.35	10.46	60.81	34.55	34.07
95th-Percentile Queue Length [veh/ln]	0.52	2.37	0.15	2.84	0.38	0.58	2.47	0.75	4.38	2.49	2.45
95th-Percentile Queue Length [ft/ln]	12.93	59.29	3.65	70.95	9.57	14.42	61.84	18.82	109.46	62.19	61.32

Movement, Approach, & Intersection Results

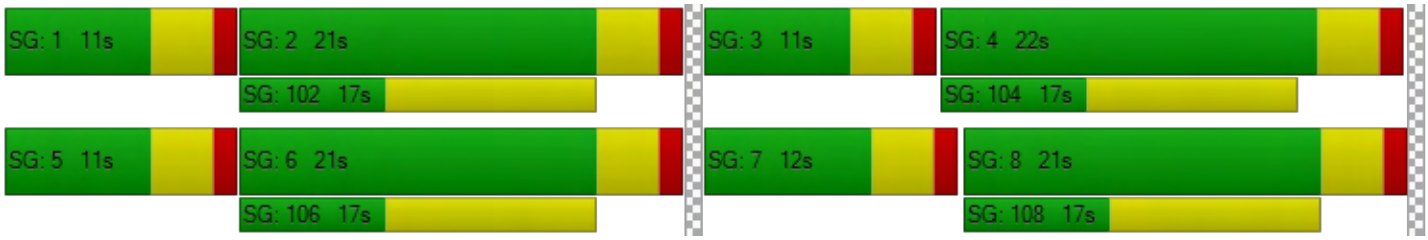
d_M, Delay for Movement [s/veh]	5.61	9.52	9.52	5.27	11.12	9.52	34.12	30.53	27.79	35.27	24.33	24.36
Movement LOS	A	A	A	A	B	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	8.52			10.44			30.43			28.80		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	19.22											
Intersection LOS	B											
Intersection V/C	0.363											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	22.43	22.43	22.43	22.43
l_p,int, Pedestrian LOS Score for Intersection	2.351	2.405	2.459	2.460
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	523	523	523	554
d_b, Bicycle Delay [s]	17.72	17.72	17.72	16.99
l_b,int, Bicycle LOS Score for Intersection	1.994	1.990	1.794	1.862
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Westgrove Apartments

Vistro File: G:\...\PME_PH1_IMPRV.vistro
Report File: G:\...\PMEp_IMPRV.pdf

Scenario 2 Existing Plus Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.785	19.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	19.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	39	266	185	61	203	7	24	322	69	137	153	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	8	5	10	5	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	266	185	61	203	15	29	332	74	137	172	18
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	72	50	16	55	4	8	90	20	37	46	5
Total Analysis Volume [veh/h]	51	287	200	66	219	16	31	359	80	148	186	19
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	22	21	0	13	21	0	11	28	0	11	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	27	27	27	27	27	3	14	14	7	18	18
g / C, Green / Cycle	0.45	0.45	0.45	0.45	0.45	0.05	0.24	0.24	0.11	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.04	0.29	0.07	0.12	0.01	0.02	0.20	0.05	0.09	0.06	0.06
s, saturation flow rate [veh/h]	1181	1678	923	1800	1530	1714	1800	1530	1714	1800	1742
c, Capacity [veh/h]	522	760	294	815	692	85	429	364	188	537	520
d1, Uniform Delay [s]	13.65	12.70	21.30	10.26	9.11	27.69	21.81	18.42	26.09	15.70	15.72
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	4.13	1.76	0.81	0.06	2.63	4.40	0.30	7.10	0.17	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.64	0.22	0.27	0.02	0.37	0.84	0.22	0.79	0.19	0.20
d, Delay for Lane Group [s/veh]	14.02	16.83	23.06	11.07	9.17	30.32	26.21	18.72	33.19	15.88	15.90
Lane Group LOS	B	B	C	B	A	C	C	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.45	4.68	0.85	1.57	0.10	0.45	4.63	0.80	2.20	0.92	0.90
50th-Percentile Queue Length [ft/ln]	11.23	116.94	21.28	39.17	2.54	11.27	115.80	20.09	55.07	23.02	22.61
95th-Percentile Queue Length [veh/ln]	0.81	8.22	1.53	2.82	0.18	0.81	8.16	1.45	3.97	1.66	1.63
95th-Percentile Queue Length [ft/ln]	20.21	205.61	38.31	70.51	4.57	20.28	204.04	36.16	99.13	41.43	40.71

Movement, Approach, & Intersection Results

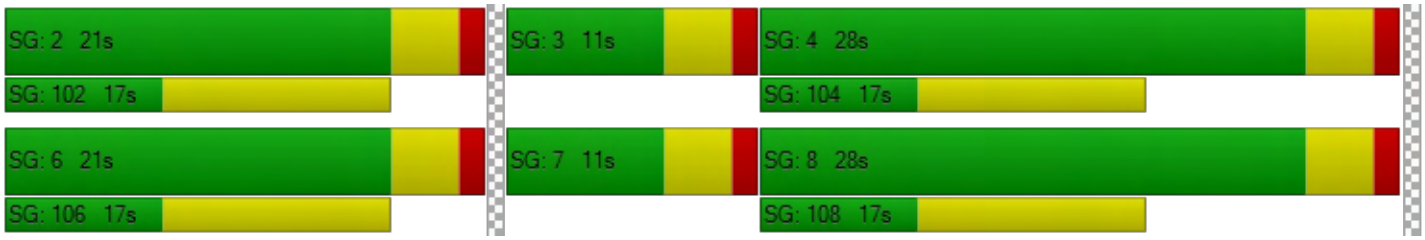
d_M, Delay for Movement [s/veh]	14.02	16.83	16.83	23.06	11.07	9.17	30.32	26.21	18.72	33.19	15.89	15.90
Movement LOS	B	B	B	C	B	A	C	C	B	C	B	B
d_A, Approach Delay [s/veh]	16.56			13.60			25.21			23.14		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	19.87											
Intersection LOS	B											
Intersection V/C	0.785											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	20.01	20.01	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	2.469	2.464	2.561	2.657
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	800	800
d_b, Bicycle Delay [s]	15.41	15.41	10.80	10.80
l_b,int, Bicycle LOS Score for Intersection	2.447	2.056	2.335	1.851
Bicycle LOS	B	B	B	A

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



OPENING YEAR (2020) WITHOUT PROJECT

WITH IMPROVEMENTS

Westgrove Apartments

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Report File: G:\...\AMOY_PH1_IMPRV.pdf

Scenario 1 Opening Year (2020) Without Project
9/12/2019

Intersection Analysis Summary

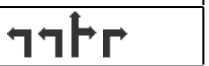
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	0.503	15.3	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.544	15.6	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.382	20.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.503

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	593	564	0	0	552	701	0	0	0	240	2	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	143	0	0	80	55	0	0	0	72	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	655	707	0	0	632	756	0	0	0	312	2	171
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	191	0	0	171	204	0	0	0	84	1	46
Total Analysis Volume [veh/h]	708	764	0	0	683	817	0	0	0	337	2	185
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	25	46	0	0	21	0	0	0	0	0	14	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	60	60	60		60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	16	44	24		8	8	8
g / C, Green / Cycle	0.26	0.73	0.40		0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.21	0.16	0.14		0.10	0.06	0.06
s, saturation flow rate [veh/h]	3329	4903	4903		3329	1535	1530
c, Capacity [veh/h]	862	3570	1974		463	213	213
d1, Uniform Delay [s]	20.98	2.63	12.48		24.81	23.75	23.75
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.02	0.14	0.48		2.22	1.42	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.21	0.35		0.73	0.44	0.44
d, Delay for Lane Group [s/veh]	22.99	2.77	12.96		27.03	25.17	25.18
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.20	0.34	1.78		2.30	1.23	1.23
50th-Percentile Queue Length [ft/ln]	105.12	8.39	44.41		57.46	30.78	30.68
95th-Percentile Queue Length [veh/ln]	7.57	0.60	3.20		4.14	2.22	2.21
95th-Percentile Queue Length [ft/ln]	189.19	15.11	79.94		103.42	55.40	55.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.99	2.77	0.00	0.00	12.96	0.00	0.00	0.00	0.00	27.03	25.17	25.17
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	12.50			12.96			0.00			26.37		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	15.33											
Intersection LOS	B											
Intersection V/C	0.503											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.038	2.236
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	567	0	333
d_b, Bicycle Delay [s]	2.70	15.41	30.00	20.83
l_b,int, Bicycle LOS Score for Intersection	2.369	1.935	4.132	2.424
Bicycle LOS	B	A	D	B

Sequence

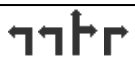
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	678	296	81	512	0	552	3	492	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	132	71	13	139	0	73	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	810	367	94	651	0	625	3	549	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	218	99	25	175	0	168	1	147	0	0	0
Total Analysis Volume [veh/h]	0	870	394	101	699	0	671	3	590	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	47.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	27	0	11	38	0	0	22	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	27	27	6	37	15	15	15	
g / C, Green / Cycle	0.45	0.45	0.10	0.61	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.18	0.26	0.03	0.14	0.20	0.19	0.19	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	3329	1532	1530	
c, Capacity [veh/h]	2196	685	323	2997	852	392	391	
d1, Uniform Delay [s]	11.15	12.35	25.30	5.30	20.87	20.66	20.67	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.54	3.49	0.55	0.18	1.67	3.00	3.02	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.40	0.58	0.31	0.23	0.79	0.76	0.76	
d, Delay for Lane Group [s/veh]	11.69	15.85	25.85	5.49	22.53	23.66	23.69	
Lane Group LOS	B	B	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	2.09	3.65	0.62	0.84	4.21	3.84	3.84	
50th-Percentile Queue Length [ft/ln]	52.33	91.27	15.62	21.06	105.24	95.92	96.00	
95th-Percentile Queue Length [veh/ln]	3.77	6.57	1.12	1.52	7.57	6.91	6.91	
95th-Percentile Queue Length [ft/ln]	94.20	164.29	28.11	37.91	189.35	172.66	172.81	

Movement, Approach, & Intersection Results

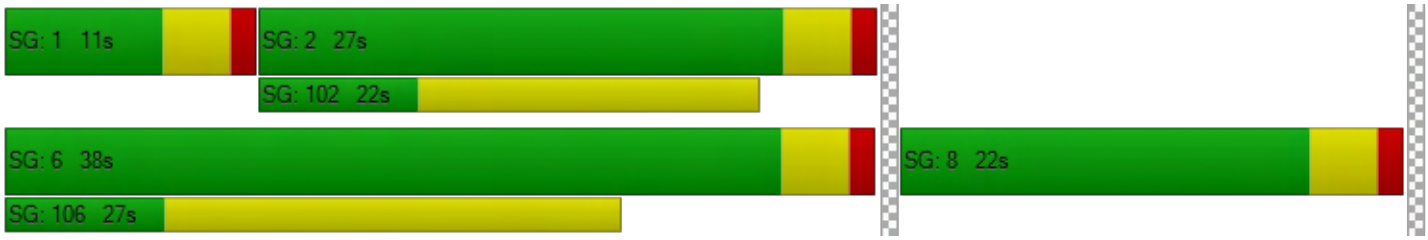
d_M, Delay for Movement [s/veh]	0.00	11.69	15.85	25.85	5.49	0.00	22.53	23.66	23.67	0.00	0.00	0.00
Movement LOS		B	B	C	A		C	C	C			
d_A, Approach Delay [s/veh]	12.98			8.06			23.07			0.00		
Approach LOS	B			A			C			A		
d_I, Intersection Delay [s/veh]	15.63											
Intersection LOS	B											
Intersection V/C	0.544											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.417	1.935
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	1133	600	0
d_b, Bicycle Delay [s]	11.41	5.63	14.70	30.00
l_b,int, Bicycle LOS Score for Intersection	2.255	2.000	3.645	4.132
Bicycle LOS	B	A	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.382

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	58	120	64	23	188	29	12	79	19	136	188	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	0	27	7	35	14	15	2	2	26	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	127	64	50	195	64	26	94	21	138	214	25
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	36	18	14	55	18	7	27	6	39	61	7
Total Analysis Volume [veh/h]	66	144	73	57	221	73	30	107	24	157	243	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	11	21	0	17	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	44	35	44	34	34	3	7	7	8	11	11
g / C, Green / Cycle	0.62	0.50	0.62	0.49	0.49	0.05	0.09	0.09	0.12	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.13	0.05	0.12	0.05	0.02	0.06	0.02	0.09	0.08	0.08
s, saturation flow rate [veh/h]	1267	1699	1266	1800	1530	1714	1800	1530	1714	1800	1736
c, Capacity [veh/h]	843	839	839	879	747	79	168	143	199	294	283
d1, Uniform Delay [s]	5.52	10.33	5.51	10.48	9.66	32.52	30.71	29.34	30.20	26.62	26.65
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	0.75	0.03	0.69	0.26	2.94	3.97	0.55	6.74	1.15	1.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.26	0.07	0.25	0.10	0.38	0.64	0.17	0.79	0.47	0.47
d, Delay for Lane Group [s/veh]	5.70	11.08	5.54	11.17	9.92	35.46	34.68	29.89	36.93	27.77	27.87
Lane Group LOS	A	B	A	B	A	D	C	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.30	1.73	0.23	1.77	0.54	0.52	1.79	0.37	2.74	1.99	1.94
50th-Percentile Queue Length [ft/ln]	7.62	43.28	5.83	44.25	13.54	13.10	44.75	9.14	68.39	49.67	48.60
95th-Percentile Queue Length [veh/ln]	0.55	3.12	0.42	3.19	0.98	0.94	3.22	0.66	4.92	3.58	3.50
95th-Percentile Queue Length [ft/ln]	13.71	77.90	10.49	79.65	24.38	23.57	80.56	16.46	123.11	89.41	87.48

Movement, Approach, & Intersection Results

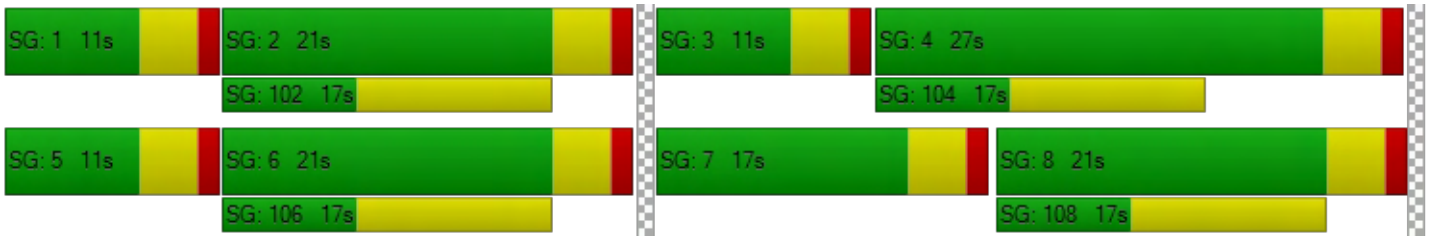
d_M, Delay for Movement [s/veh]	5.70	11.08	11.08	5.54	11.17	9.92	35.46	34.68	29.89	36.93	27.81	27.87
Movement LOS	A	B	B	A	B	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	9.82			9.99			34.11			31.16		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	20.54											
Intersection LOS	C											
Intersection V/C	0.382											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.368	2.448	2.494	2.523
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	486	657
d_b, Bicycle Delay [s]	20.06	20.06	20.06	15.78
l_b,int, Bicycle LOS Score for Intersection	2.027	2.139	1.825	1.913
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Westgrove Apartments

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Report File: G:\...\PMOY_PH1_IMPRV.pdf

Scenario 1 Opening Year (2020) Without Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Right	0.448	16.5	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.695	16.3	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.844	30.1	C

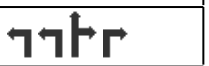
V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.448

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	473	722	0	0	204	388	0	0	0	356	9	386
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	172	0	0	148	83	0	0	0	103	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	551	894	0	0	352	471	0	0	0	459	9	403
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	148	240	0	0	95	127	0	0	0	123	2	108
Total Analysis Volume [veh/h]	592	960	0	0	378	506	0	0	0	493	10	433
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	42	0	0	21	0	0	0	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	60	60	60		60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	13	40	23		12	12	12
g / C, Green / Cycle	0.22	0.67	0.39		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.18	0.20	0.08		0.15	0.14	0.14
s, saturation flow rate [veh/h]	3329	4903	4903		3329	1540	1530
c, Capacity [veh/h]	730	3296	1895		649	300	298
d1, Uniform Delay [s]	22.30	4.02	12.27		22.89	22.78	22.80
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.23	0.22	0.24		1.87	3.55	3.65
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.29	0.20		0.76	0.74	0.74
d, Delay for Lane Group [s/veh]	24.53	4.24	12.51		24.76	26.33	26.45
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.64	0.82	0.95		3.23	3.03	3.04
50th-Percentile Queue Length [ft/ln]	90.95	20.57	23.74		80.64	75.79	75.93
95th-Percentile Queue Length [veh/ln]	6.55	1.48	1.71		5.81	5.46	5.47
95th-Percentile Queue Length [ft/ln]	163.71	37.02	42.74		145.16	136.42	136.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.53	4.24	0.00	0.00	12.51	0.00	0.00	0.00	0.00	24.76	26.33	26.40
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	11.98			12.51			0.00			25.53		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	16.48											
Intersection LOS	B											
Intersection V/C	0.448											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.986	2.337
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1267	567	0	467
d_b, Bicycle Delay [s]	4.03	15.41	30.00	17.63
l_b,int, Bicycle LOS Score for Intersection	2.413	1.768	4.132	3.104
Bicycle LOS	B	A	D	C

Sequence

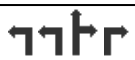
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.695

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	860	450	267	533	0	350	3	377	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	188	100	35	216	0	62	0	83	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1048	550	302	749	0	412	3	460	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	272	143	78	195	0	107	1	120	0	0	0
Total Analysis Volume [veh/h]	0	1089	572	314	778	0	428	3	478	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	41.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	32	0	12	44	0	0	16	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	29	29	8	41	11	11	11	
g / C, Green / Cycle	0.48	0.48	0.13	0.68	0.19	0.19	0.19	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.37	0.09	0.16	0.13	0.16	0.16	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	3329	1533	1530	
c, Capacity [veh/h]	2364	738	421	3311	639	294	293	
d1, Uniform Delay [s]	10.37	12.88	25.34	3.77	22.55	23.31	23.31	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.65	7.81	2.64	0.17	1.23	5.57	5.62	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.78	0.75	0.23	0.67	0.82	0.82	
d, Delay for Lane Group [s/veh]	11.02	20.70	27.99	3.94	23.77	28.88	28.93	
Lane Group LOS	B	C	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	2.50	6.22	2.07	0.62	2.72	3.48	3.49	
50th-Percentile Queue Length [ft/ln]	62.52	155.49	51.65	15.51	67.90	87.10	87.16	
95th-Percentile Queue Length [veh/ln]	4.50	10.31	3.72	1.12	4.89	6.27	6.28	
95th-Percentile Queue Length [ft/ln]	112.54	257.73	92.98	27.92	122.21	156.79	156.88	

Movement, Approach, & Intersection Results

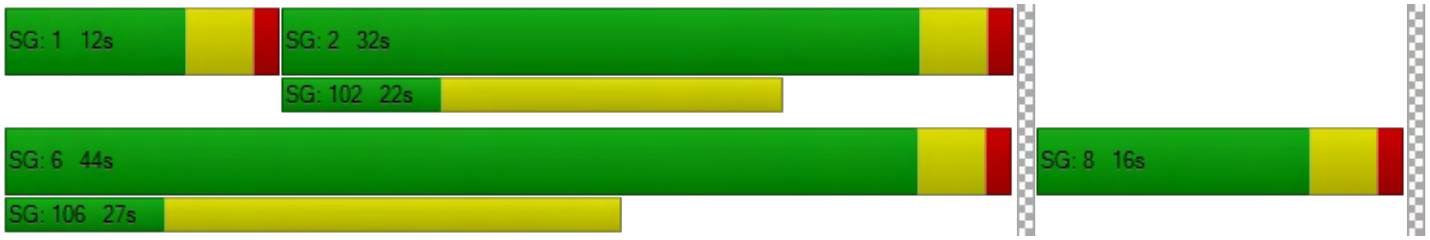
d_M, Delay for Movement [s/veh]	0.00	11.02	20.70	27.99	3.94	0.00	23.77	28.88	28.90	0.00	0.00	0.00
Movement LOS		B	C	C	A		C	C	C			
d_A, Approach Delay [s/veh]	14.35			10.85			26.49			0.00		
Approach LOS	B			B			C			A		
d_I, Intersection Delay [s/veh]	16.32											
Intersection LOS	B											
Intersection V/C	0.695											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.330	2.126
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	1333	400	0
d_b, Bicycle Delay [s]	8.53	3.33	19.20	30.00
l_b,int, Bicycle LOS Score for Intersection	2.473	2.160	3.059	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.844

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	45	282	190	68	222	10	29	348	73	141	176	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	8	1	16	7	22	50	19	0	1	26	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	290	191	84	229	32	79	367	73	142	202	47
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	78	52	23	62	9	21	99	20	38	55	13
Total Analysis Volume [veh/h]	51	313	206	91	247	35	85	397	79	153	218	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	27	0	11	27	0	11	21	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	24	34	26	26	6	17	17	7	18	18
g / C, Green / Cycle	0.49	0.35	0.49	0.37	0.37	0.08	0.24	0.24	0.10	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.04	0.31	0.08	0.14	0.02	0.05	0.22	0.05	0.09	0.08	0.08
s, saturation flow rate [veh/h]	1257	1682	1084	1800	1530	1714	1800	1530	1714	1800	1685
c, Capacity [veh/h]	656	585	426	662	563	139	433	368	172	467	437
d1, Uniform Delay [s]	9.79	21.54	12.83	16.22	14.32	31.11	25.92	21.30	31.13	20.79	20.83
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.23	17.89	0.25	1.61	0.21	4.29	8.17	0.29	14.38	0.35	0.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.89	0.21	0.37	0.06	0.61	0.92	0.21	0.89	0.29	0.30
d, Delay for Lane Group [s/veh]	10.02	39.43	13.08	17.83	14.54	35.40	34.09	21.59	45.52	21.14	21.21
Lane Group LOS	B	D	B	B	B	D	C	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.38	9.77	0.65	2.80	0.35	1.45	6.68	0.96	3.03	1.66	1.59
50th-Percentile Queue Length [ft/ln]	9.48	244.18	16.14	70.02	8.66	36.14	167.00	24.03	75.68	41.40	39.71
95th-Percentile Queue Length [veh/ln]	0.68	14.89	1.16	5.04	0.62	2.60	10.92	1.73	5.45	2.98	2.86
95th-Percentile Queue Length [ft/ln]	17.06	372.32	29.05	126.04	15.60	65.05	272.96	43.26	136.22	74.51	71.47

Movement, Approach, & Intersection Results

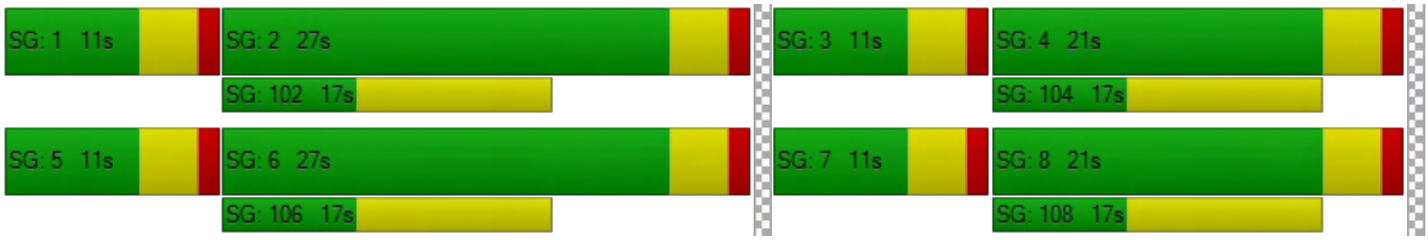
d_M, Delay for Movement [s/veh]	10.02	39.43	39.43	13.08	17.83	14.54	35.40	34.09	21.59	45.52	21.17	21.21
Movement LOS	B	D	D	B	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	36.80			16.36			32.53			30.00		
Approach LOS	D			B			C			C		
d_I, Intersection Delay [s/veh]	30.11											
Intersection LOS	C											
Intersection V/C	0.844											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.501	2.526	2.568	2.661
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	657	657	486	486
d_b, Bicycle Delay [s]	15.78	15.78	20.06	20.06
l_b,int, Bicycle LOS Score for Intersection	2.500	2.175	2.485	1.908
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



OPENING YEAR (2020) WITH PROJECT

WITH IMPROVEMENTS

Westgrove Apartments

Vistro File: G:\...\AMOY_PH1_IMPRV.vistro
Report File: G:\...\AMOYp_PH1_IMPRV.pdf

Scenario 2 Opening Year (2020) With Project
9/12/2019

Intersection Analysis Summary

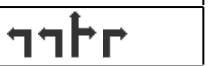
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	0.508	15.5	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.552	15.8	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.394	21.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.508

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	593	564	0	0	552	701	0	0	0	240	2	136
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	152	0	0	99	77	0	0	0	72	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	655	716	0	0	651	778	0	0	0	312	2	175
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	177	193	0	0	176	210	0	0	0	84	1	47
Total Analysis Volume [veh/h]	708	774	0	0	703	841	0	0	0	337	2	189
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	47	0	0	26	0	0	0	0	0	13	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	15	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	60	60	60		60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	44	25		8	8	8
g / C, Green / Cycle	0.25	0.73	0.42		0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.21	0.16	0.14		0.10	0.06	0.06
s, saturation flow rate [veh/h]	3329	4903	4903		3329	1535	1530
c, Capacity [veh/h]	833	3583	2029		454	209	209
d1, Uniform Delay [s]	21.47	2.59	12.07		24.96	23.93	23.93
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.54	0.14	0.47		2.42	1.55	1.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.22	0.35		0.74	0.46	0.46
d, Delay for Lane Group [s/veh]	24.01	2.73	12.53		27.38	25.48	25.49
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.32	0.33	1.78		2.32	1.27	1.26
50th-Percentile Queue Length [ft/ln]	108.06	8.19	44.57		57.91	31.70	31.60
95th-Percentile Queue Length [veh/ln]	7.73	0.59	3.21		4.17	2.28	2.28
95th-Percentile Queue Length [ft/ln]	193.30	14.74	80.23		104.24	57.05	56.89

Movement, Approach, & Intersection Results

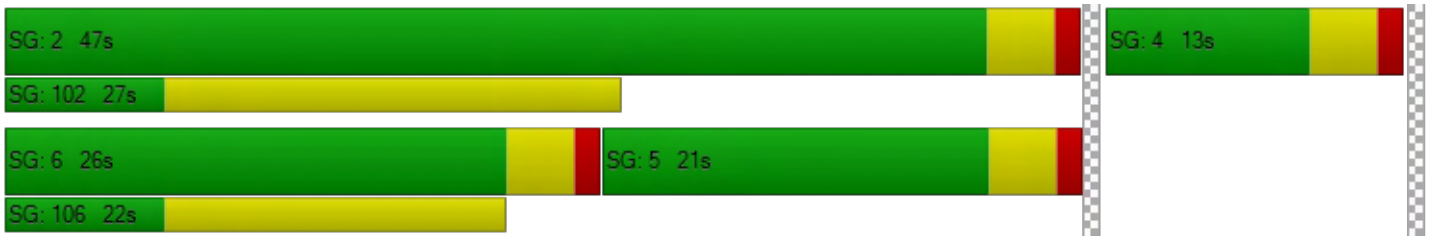
d_M, Delay for Movement [s/veh]	24.01	2.73	0.00	0.00	12.53	0.00	0.00	0.00	0.00	27.38	25.48	25.49
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	12.90			12.53			0.00			26.70		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	15.49											
Intersection LOS	B											
Intersection V/C	0.508											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.038	2.237
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1433	733	0	300
d_b, Bicycle Delay [s]	2.41	12.03	30.00	21.68
l_b,int, Bicycle LOS Score for Intersection	2.375	1.946	4.132	2.431
Bicycle LOS	B	A	D	B

Sequence

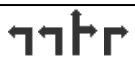
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	678	296	81	512	0	552	3	492	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	133	71	28	143	0	81	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	811	367	109	655	0	633	3	549	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	218	99	29	176	0	170	1	147	0	0	0
Total Analysis Volume [veh/h]	0	871	394	117	704	0	680	3	590	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	43.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	27	0	11	38	0	0	22	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	27	27	6	37	15	15	15	
g / C, Green / Cycle	0.44	0.44	0.10	0.61	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.18	0.26	0.04	0.14	0.20	0.19	0.19	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	3329	1532	1530	
c, Capacity [veh/h]	2161	674	339	2987	858	395	395	
d1, Uniform Delay [s]	11.44	12.67	25.15	5.37	20.82	20.54	20.55	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.56	3.68	0.60	0.19	1.70	2.88	2.91	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.40	0.58	0.34	0.24	0.79	0.75	0.75	
d, Delay for Lane Group [s/veh]	12.00	16.35	25.75	5.55	22.52	23.43	23.46	
Lane Group LOS	B	B	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	2.14	3.74	0.72	0.86	4.27	3.81	3.82	
50th-Percentile Queue Length [ft/ln]	53.52	93.45	18.05	21.48	106.68	95.36	95.44	
95th-Percentile Queue Length [veh/ln]	3.85	6.73	1.30	1.55	7.65	6.87	6.87	
95th-Percentile Queue Length [ft/ln]	96.34	168.22	32.48	38.67	191.37	171.64	171.78	

Movement, Approach, & Intersection Results

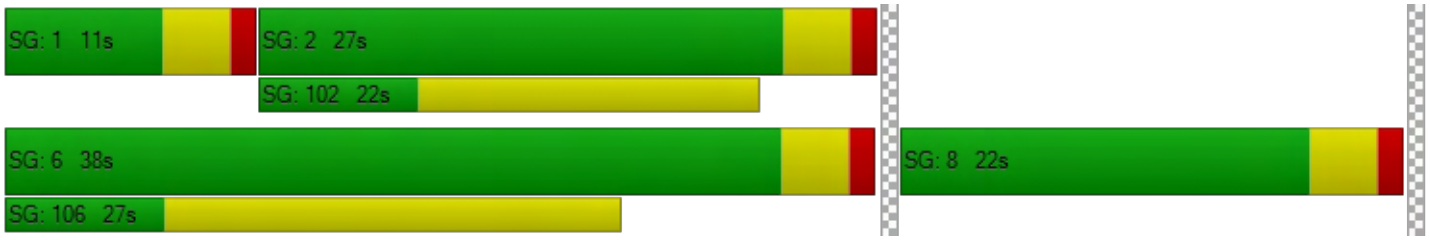
d_M, Delay for Movement [s/veh]	0.00	12.00	16.35	25.75	5.55	0.00	22.52	23.43	23.44	0.00	0.00	0.00
Movement LOS		B	B	C	A		C	C	C			
d_A, Approach Delay [s/veh]	13.36			8.43			22.95			0.00		
Approach LOS	B			A			C			A		
d_I, Intersection Delay [s/veh]	15.79											
Intersection LOS	B											
Intersection V/C	0.552											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.419	1.943
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	1133	600	0
d_b, Bicycle Delay [s]	11.41	5.63	14.70	30.00
l_b,int, Bicycle LOS Score for Intersection	2.255	2.011	3.660	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.394

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	58	120	64	23	188	29	12	79	19	136	188	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	7	0	27	7	38	22	30	10	2	33	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	61	127	64	50	195	67	34	109	29	138	221	25
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	36	18	14	55	19	10	31	8	39	63	7
Total Analysis Volume [veh/h]	69	144	73	57	221	76	39	124	33	157	251	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	11	21	0	17	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	43	35	43	34	34	4	7	7	8	11	11
g / C, Green / Cycle	0.62	0.49	0.62	0.49	0.49	0.05	0.10	0.10	0.12	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.05	0.13	0.04	0.12	0.05	0.02	0.07	0.02	0.09	0.08	0.08
s, saturation flow rate [veh/h]	1269	1699	1267	1800	1530	1714	1800	1530	1714	1800	1738
c, Capacity [veh/h]	838	833	833	870	740	95	174	148	199	284	274
d1, Uniform Delay [s]	5.64	10.47	5.61	10.69	9.87	32.08	30.78	29.29	30.20	27.04	27.06
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	0.76	0.03	0.70	0.28	2.84	5.31	0.75	6.74	1.35	1.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.26	0.07	0.25	0.10	0.41	0.71	0.22	0.79	0.50	0.50
d, Delay for Lane Group [s/veh]	5.83	11.23	5.65	11.39	10.14	34.92	36.09	30.04	36.93	28.38	28.49
Lane Group LOS	A	B	A	B	B	C	D	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.32	1.75	0.24	1.80	0.57	0.67	2.13	0.50	2.74	2.08	2.03
50th-Percentile Queue Length [ft/ln]	8.10	43.71	5.92	44.90	14.34	16.69	53.17	12.62	68.39	51.91	50.81
95th-Percentile Queue Length [veh/ln]	0.58	3.15	0.43	3.23	1.03	1.20	3.83	0.91	4.92	3.74	3.66
95th-Percentile Queue Length [ft/ln]	14.59	78.68	10.66	80.82	25.80	30.04	95.71	22.71	123.11	93.43	91.45

Movement, Approach, & Intersection Results

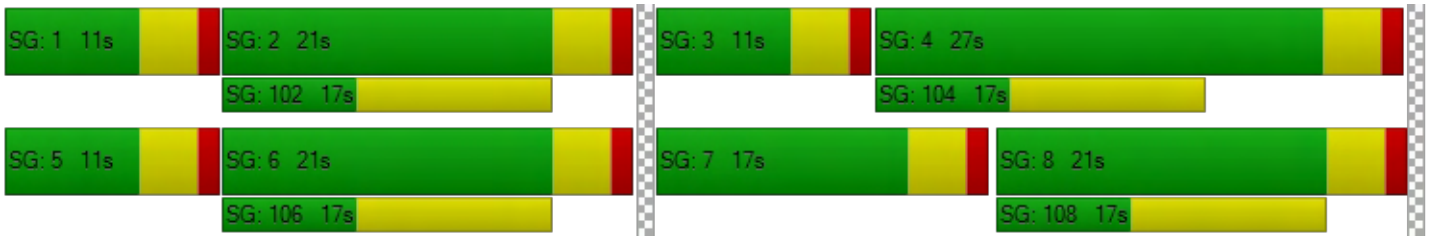
d_M, Delay for Movement [s/veh]	5.83	11.23	11.23	5.65	11.39	10.14	34.92	36.09	30.04	36.93	28.43	28.49
Movement LOS	A	B	B	A	B	B	C	D	C	D	C	C
d_A, Approach Delay [s/veh]	9.93			10.20			34.84			31.49		
Approach LOS	A			B			C			C		
d_I, Intersection Delay [s/veh]	21.23											
Intersection LOS	C											
Intersection V/C	0.394											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.372	2.451	2.510	2.530
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	486	657
d_b, Bicycle Delay [s]	20.06	20.06	20.06	15.78
l_b,int, Bicycle LOS Score for Intersection	2.032	2.144	1.883	1.919
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Westgrove Apartments

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Report File: G:\...\PMOYp_PH1_IMPRV.pdf

Scenario 2 Opening Year (2020) With Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Right	0.451	16.9	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.698	16.5	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.852	30.5	C

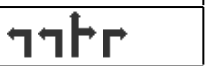
V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.451

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	473	722	0	0	204	388	0	0	0	356	9	386
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	199	0	0	160	97	0	0	0	103	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	551	921	0	0	364	485	0	0	0	459	9	414
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	148	247	0	0	98	130	0	0	0	123	2	111
Total Analysis Volume [veh/h]	592	989	0	0	391	521	0	0	0	493	10	445
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	18	44	0	0	26	0	0	0	0	0	16	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	15	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	60	60	60		60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	13	41	24		11	11	11
g / C, Green / Cycle	0.21	0.68	0.40		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.18	0.20	0.08		0.15	0.15	0.15
s, saturation flow rate [veh/h]	3329	4903	4903		3329	1540	1530
c, Capacity [veh/h]	707	3337	1969		621	287	285
d1, Uniform Delay [s]	22.70	3.85	11.71		23.37	23.36	23.38
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.73	0.23	0.23		2.35	4.90	5.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.30	0.20		0.79	0.79	0.80
d, Delay for Lane Group [s/veh]	25.42	4.07	11.93		25.72	28.26	28.44
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.72	0.80	0.95		3.30	3.25	3.26
50th-Percentile Queue Length [ft/ln]	93.03	19.91	23.70		82.50	81.24	81.51
95th-Percentile Queue Length [veh/ln]	6.70	1.43	1.71		5.94	5.85	5.87
95th-Percentile Queue Length [ft/ln]	167.46	35.83	42.65		148.50	146.23	146.72

Movement, Approach, & Intersection Results

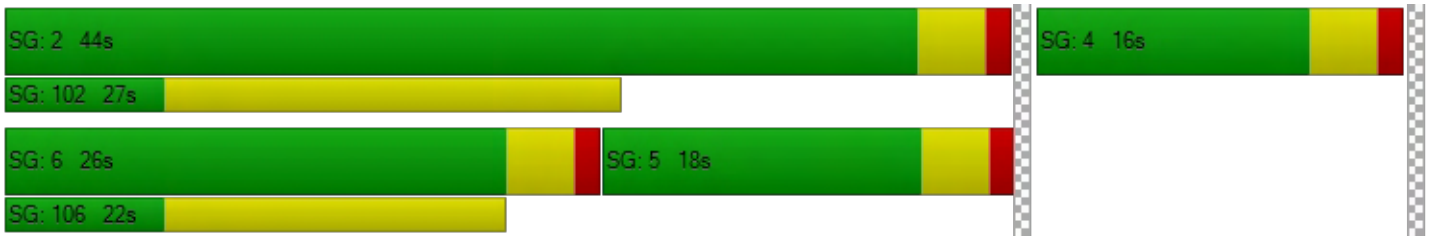
d_M, Delay for Movement [s/veh]	25.42	4.07	0.00	0.00	11.93	0.00	0.00	0.00	0.00	25.72	28.26	28.35
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	12.07			11.93			0.00			26.98		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	16.89											
Intersection LOS	B											
Intersection V/C	0.451											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
I_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	1.986	2.340
Crosswalk LOS	F	F	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1333	733	0	400
d_b, Bicycle Delay [s]	3.33	12.03	30.00	19.20
I_b,int, Bicycle LOS Score for Intersection	2.429	1.775	4.132	3.124
Bicycle LOS	B	A	D	C

Sequence

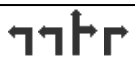
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.698

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	860	450	267	533	0	350	3	377	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	192	100	45	218	0	85	0	83	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1052	550	312	751	0	435	3	460	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	273	143	81	195	0	113	1	120	0	0	0
Total Analysis Volume [veh/h]	0	1093	572	324	780	0	452	3	478	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	46.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	32	0	12	44	0	0	16	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	29	29	8	41	11	11	11	
g / C, Green / Cycle	0.48	0.48	0.13	0.68	0.19	0.19	0.19	
(v / s)_i Volume / Saturation Flow Rate	0.22	0.37	0.10	0.16	0.14	0.16	0.16	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	3329	1533	1530	
c, Capacity [veh/h]	2350	733	430	3310	639	294	294	
d1, Uniform Delay [s]	10.49	13.02	25.27	3.78	22.73	23.30	23.30	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.66	8.04	2.69	0.17	1.45	5.54	5.59	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.47	0.78	0.75	0.24	0.71	0.82	0.82	
d, Delay for Lane Group [s/veh]	11.16	21.07	27.96	3.94	24.18	28.84	28.90	
Lane Group LOS	B	C	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	2.54	6.30	2.13	0.62	2.90	3.48	3.48	
50th-Percentile Queue Length [ft/ln]	63.43	157.51	53.29	15.58	72.61	87.03	87.11	
95th-Percentile Queue Length [veh/ln]	4.57	10.42	3.84	1.12	5.23	6.27	6.27	
95th-Percentile Queue Length [ft/ln]	114.17	260.42	95.93	28.04	130.70	156.65	156.80	

Movement, Approach, & Intersection Results

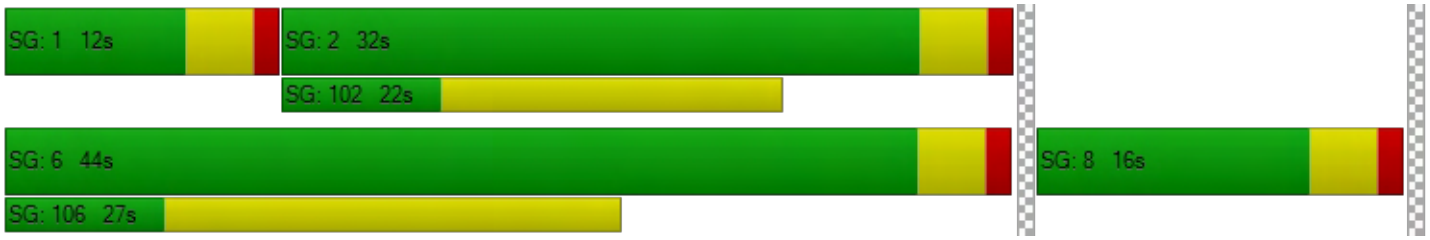
d_M, Delay for Movement [s/veh]	0.00	11.16	21.07	27.96	3.94	0.00	24.18	28.84	28.87	0.00	0.00	0.00
Movement LOS		B	C	C	A		C	C	C			
d_A, Approach Delay [s/veh]	14.56			10.99			26.60			0.00		
Approach LOS	B			B			C			A		
d_I, Intersection Delay [s/veh]	16.53											
Intersection LOS	B											
Intersection V/C	0.698											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.336	2.131
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	1333	400	0
d_b, Bicycle Delay [s]	8.53	3.33	19.20	30.00
l_b,int, Bicycle LOS Score for Intersection	2.475	2.167	3.099	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.852

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	45	282	190	68	222	10	29	348	73	141	176	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	8	1	16	7	30	55	29	5	1	45	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	290	191	84	229	40	84	377	78	142	221	47
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	78	52	23	62	11	23	102	21	38	60	13
Total Analysis Volume [veh/h]	59	313	206	91	247	43	91	407	84	153	239	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	27	0	11	27	0	11	21	0	11	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	24	34	25	25	6	17	17	7	18	18
g / C, Green / Cycle	0.49	0.35	0.49	0.36	0.36	0.08	0.24	0.24	0.10	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.05	0.31	0.08	0.14	0.03	0.05	0.23	0.05	0.09	0.08	0.08
s, saturation flow rate [veh/h]	1263	1682	1084	1800	1530	1714	1800	1530	1714	1800	1693
c, Capacity [veh/h]	658	585	426	652	554	143	433	368	172	463	436
d1, Uniform Delay [s]	9.84	21.54	12.83	16.50	14.65	31.08	26.10	21.37	31.13	21.04	21.08
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	17.90	0.25	1.67	0.27	4.67	10.25	0.31	14.38	0.39	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.89	0.21	0.38	0.08	0.64	0.94	0.23	0.89	0.32	0.33
d, Delay for Lane Group [s/veh]	10.11	39.44	13.08	18.17	14.92	35.75	36.35	21.69	45.52	21.44	21.51
Lane Group LOS	B	D	B	B	B	D	D	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.44	9.77	0.65	2.84	0.43	1.56	7.12	1.03	3.03	1.80	1.73
50th-Percentile Queue Length [ft/ln]	11.03	244.20	16.14	70.94	10.84	38.90	177.88	25.65	75.68	45.09	43.32
95th-Percentile Queue Length [veh/ln]	0.79	14.89	1.16	5.11	0.78	2.80	11.49	1.85	5.45	3.25	3.12
95th-Percentile Queue Length [ft/ln]	19.85	372.34	29.05	127.70	19.52	70.03	287.24	46.17	136.22	81.15	77.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.11	39.44	39.44	13.08	18.17	14.92	35.75	36.35	21.69	45.52	21.47	21.51
Movement LOS	B	D	D	B	B	B	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	36.45			16.59			34.14			29.78		
Approach LOS	D			B			C			C		
d_I, Intersection Delay [s/veh]	30.47											
Intersection LOS	C											
Intersection V/C	0.852											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.506	2.531	2.589	2.670
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	657	657	486	486
d_b, Bicycle Delay [s]	15.78	15.78	20.06	20.06
l_b,int, Bicycle LOS Score for Intersection	2.513	2.188	2.520	1.925
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



YEAR 2022 WITHOUT PROJECT

WITH RECIPRICAL ACCESS

WITH IMPROVEMENTS

Westgrove Apartments

Vistro File: G:\...\AMOY_PH2_IMPRV.vistro
Report File: G:\...\AMOY_PH2_IMPRV.pdf

Scenario 1 Opening Year (2022) Without Project
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	SB Left	0.570	24.6	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	0.517	15.3	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.550	15.6	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.424	24.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	24.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.570

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	242	527	109	43	258	11	5	17	98	83	69	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	72	94	24	10	66	9	3	11	27	76	13	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	621	133	53	324	20	8	28	125	159	82	59
Peak Hour Factor	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	158	34	13	82	5	2	7	32	40	21	15
Total Analysis Volume [veh/h]	319	631	135	54	329	20	8	28	127	161	83	60
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	22	38	0	15	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	49	49	5	36	36	7	28	8	8	8
g / C, Green / Cycle	0.21	0.57	0.57	0.06	0.43	0.43	0.08	0.33	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.19	0.35	0.09	0.03	0.10	0.01	0.02	0.08	0.07	0.07	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1780	1530	1714	1771	1530
c, Capacity [veh/h]	355	1029	875	104	1458	651	144	513	169	174	151
d1, Uniform Delay [s]	32.89	12.03	8.57	38.80	15.56	14.25	36.71	20.53	37.23	37.22	36.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.18	2.73	0.38	3.94	0.36	0.09	0.89	0.25	5.47	5.23	1.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.61	0.15	0.52	0.23	0.03	0.25	0.25	0.71	0.71	0.40
d, Delay for Lane Group [s/veh]	41.07	14.76	8.94	42.74	15.92	14.34	37.61	20.78	42.70	42.45	37.73
Lane Group LOS	D	B	A	D	B	B	D	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.76	7.12	1.06	1.15	1.89	0.22	0.70	1.72	2.55	2.62	1.18
50th-Percentile Queue Length [ft/ln]	168.99	178.00	26.43	28.85	47.27	5.46	17.58	43.01	63.85	65.38	29.50
95th-Percentile Queue Length [veh/ln]	11.02	11.50	1.90	2.08	3.40	0.39	1.27	3.10	4.60	4.71	2.12
95th-Percentile Queue Length [ft/ln]	275.59	287.41	47.58	51.93	85.08	9.82	31.64	77.42	114.94	117.69	53.10

Movement, Approach, & Intersection Results

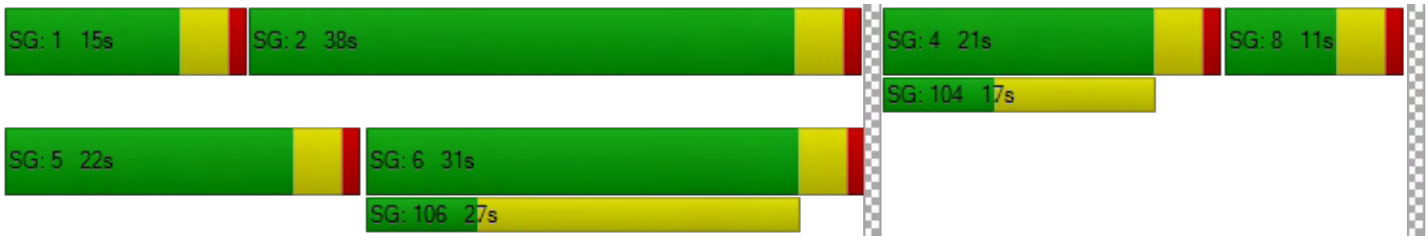
d_M, Delay for Movement [s/veh]	41.07	14.76	8.94	42.74	15.92	14.34	37.61	37.61	20.78	42.64	42.45	37.73
Movement LOS	D	B	A	D	B	B	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	21.77			19.43			24.49			41.62		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	24.60											
Intersection LOS	C											
Intersection V/C	0.570											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	32.21	32.21	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.025	2.342	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	635	165	400
d_b, Bicycle Delay [s]	15.30	19.79	35.79	27.20
l_b,int, Bicycle LOS Score for Intersection	3.350	1.892	1.829	2.061
Bicycle LOS	C	A	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	605	595	0	0	567	701	0	0	0	253	2	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	155	0	0	85	84	0	0	0	72	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	667	750	0	0	652	785	0	0	0	325	2	180
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	180	203	0	0	176	212	0	0	0	88	1	49
Total Analysis Volume [veh/h]	721	810	0	0	704	848	0	0	0	351	2	194
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	25	46	0	0	21	0	0	0	0	0	14	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	60	60	60		60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	16	44	24		9	9	9
g / C, Green / Cycle	0.26	0.72	0.40		0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.22	0.17	0.14		0.11	0.06	0.06
s, saturation flow rate [veh/h]	3329	4903	4903		3329	1535	1530
c, Capacity [veh/h]	875	3552	1937		475	219	218
d1, Uniform Delay [s]	20.87	2.74	12.85		24.72	23.62	23.62
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.03	0.15	0.53		2.27	1.43	1.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.23	0.36		0.74	0.45	0.45
d, Delay for Lane Group [s/veh]	22.90	2.89	13.38		26.99	25.05	25.06
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.27	0.38	1.88		2.39	1.29	1.28
50th-Percentile Queue Length [ft/ln]	106.86	9.52	46.96		59.84	32.16	32.07
95th-Percentile Queue Length [veh/ln]	7.66	0.69	3.38		4.31	2.32	2.31
95th-Percentile Queue Length [ft/ln]	191.62	17.13	84.52		107.72	57.89	57.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.90	2.89	0.00	0.00	13.38	0.00	0.00	0.00	0.00	26.99	25.05	25.06
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	12.31			13.38			0.00			26.30		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	15.33											
Intersection LOS	B											
Intersection V/C	0.517											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.045	2.242
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	567	0	333
d_b, Bicycle Delay [s]	2.70	15.41	30.00	20.83
l_b,int, Bicycle LOS Score for Intersection	2.402	1.947	4.132	2.462
Bicycle LOS	B	A	D	B

Sequence

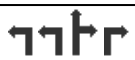
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.550

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	710	296	81	537	0	560	3	492	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	134	71	13	144	0	83	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	844	367	94	681	0	643	3	549	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	227	99	25	183	0	173	1	147	0	0	0
Total Analysis Volume [veh/h]	0	907	394	101	732	0	691	3	590	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	47.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	27	0	11	38	0	0	22	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	27	27	6	36	16	16	16	
g / C, Green / Cycle	0.44	0.44	0.10	0.61	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.18	0.26	0.03	0.15	0.21	0.19	0.19	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	3329	1532	1530	
c, Capacity [veh/h]	2173	678	323	2975	867	399	398	
d1, Uniform Delay [s]	11.44	12.56	25.30	5.47	20.77	20.41	20.41	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.59	3.61	0.55	0.20	1.73	2.76	2.78	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.42	0.58	0.31	0.25	0.80	0.74	0.74	
d, Delay for Lane Group [s/veh]	12.03	16.17	25.85	5.67	22.50	23.16	23.19	
Lane Group LOS	B	B	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	2.23	3.71	0.62	0.91	4.34	3.79	3.79	
50th-Percentile Queue Length [ft/ln]	55.87	92.68	15.62	22.80	108.46	94.69	94.77	
95th-Percentile Queue Length [veh/ln]	4.02	6.67	1.12	1.64	7.75	6.82	6.82	
95th-Percentile Queue Length [ft/ln]	100.57	166.82	28.11	41.04	193.85	170.45	170.58	

Movement, Approach, & Intersection Results

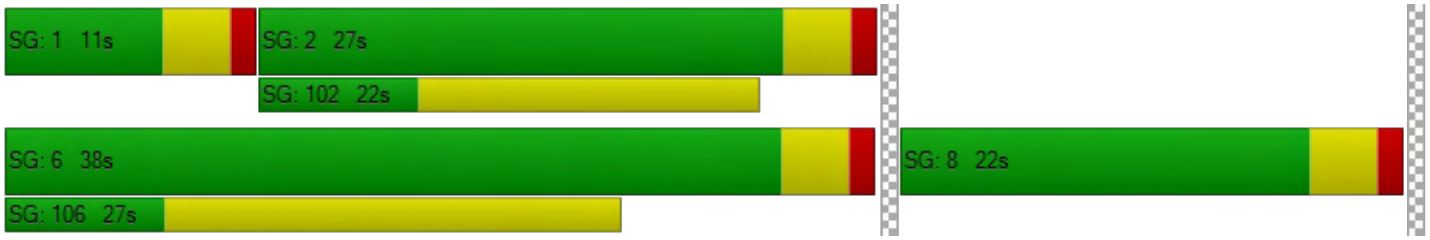
d_M, Delay for Movement [s/veh]	0.00	12.03	16.17	25.85	5.67	0.00	22.50	23.16	23.18	0.00	0.00	0.00
Movement LOS		B	B	C	A		C	C	C			
d_A, Approach Delay [s/veh]	13.29			8.11			22.81			0.00		
Approach LOS	B			A			C			A		
d_I, Intersection Delay [s/veh]	15.60											
Intersection LOS	B											
Intersection V/C	0.550											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.422	1.935
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	1133	600	0
d_b, Bicycle Delay [s]	11.41	5.63	14.70	30.00
l_b,int, Bicycle LOS Score for Intersection	2.275	2.018	3.678	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.424

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	58	133	64	23	193	31	16	84	20	136	198	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	0	64	17	50	19	15	2	2	26	21
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	143	64	87	210	81	35	99	22	138	224	42
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	41	18	25	60	23	10	28	6	39	64	12
Total Analysis Volume [veh/h]	66	162	73	99	238	92	40	112	25	157	254	48
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	11	21	0	17	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	33	6	34	34	4	7	7	8	11	11
g / C, Green / Cycle	0.07	0.48	0.09	0.49	0.49	0.06	0.09	0.09	0.12	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.14	0.06	0.13	0.06	0.02	0.04	0.04	0.09	0.09	0.09
s, saturation flow rate [veh/h]	1714	1706	1714	1800	1530	1714	1800	1690	1714	1800	1703
c, Capacity [veh/h]	127	810	149	878	746	96	169	159	199	278	263
d1, Uniform Delay [s]	31.31	11.24	31.07	10.63	9.81	32.04	29.99	30.04	30.20	27.48	27.52
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.24	0.91	4.96	0.76	0.34	2.84	1.58	1.81	6.74	1.73	1.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.29	0.66	0.27	0.12	0.42	0.41	0.43	0.79	0.56	0.56
d, Delay for Lane Group [s/veh]	34.55	12.14	36.03	11.39	10.15	34.88	31.57	31.84	36.93	29.21	29.42
Lane Group LOS	C	B	D	B	B	C	C	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.11	2.01	1.70	1.93	0.69	0.68	1.09	1.07	2.74	2.31	2.23
50th-Percentile Queue Length [ft/ln]	27.73	50.26	42.53	48.36	17.36	17.09	27.22	26.87	68.39	57.76	55.80
95th-Percentile Queue Length [veh/ln]	2.00	3.62	3.06	3.48	1.25	1.23	1.96	1.93	4.92	4.16	4.02
95th-Percentile Queue Length [ft/ln]	49.91	90.46	76.56	87.05	31.25	30.77	49.00	48.36	123.11	103.98	100.43

Movement, Approach, & Intersection Results

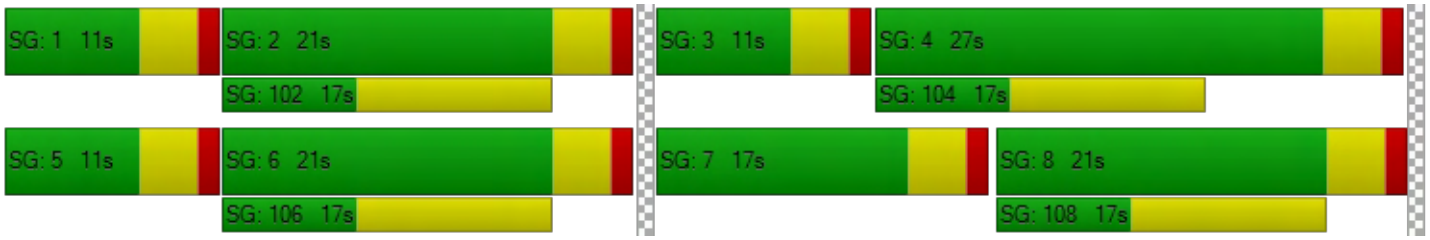
d_M, Delay for Movement [s/veh]	34.55	12.14	12.14	36.03	11.39	10.15	34.88	31.67	31.84	36.93	29.29	29.42
Movement LOS	C	B	B	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	17.06			16.81			32.42			31.92		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	23.96											
Intersection LOS	C											
Intersection V/C	0.424											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.381	2.485	2.458	2.503
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	486	657
d_b, Bicycle Delay [s]	20.06	20.06	20.06	15.78
l_b,int, Bicycle LOS Score for Intersection	2.056	2.267	1.706	1.938
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Westgrove Apartments

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Report File: G:\...\PMOY_PH2_IMPRV.pdf

Scenario 1 Opening Year (2022) Without Project
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.667	24.9	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Right	0.462	17.6	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.709	16.8	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Left	0.787	31.5	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	24.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.667

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	106	268	211	72	574	20	9	117	257	179	68	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	110	78	14	133	4	9	16	72	47	14	13
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	378	289	86	707	24	18	133	329	226	82	67
Peak Hour Factor	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	103	78	23	192	7	5	36	89	61	22	18
Total Analysis Volume [veh/h]	153	411	314	93	768	26	20	145	357	246	89	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	12	19	0	14	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	33	33	6	31	31	10	22	10	10	10
g / C, Green / Cycle	0.11	0.44	0.44	0.08	0.42	0.42	0.13	0.29	0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.09	0.23	0.21	0.05	0.22	0.02	0.09	0.23	0.10	0.10	0.05
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1789	1530	1714	1758	1530
c, Capacity [veh/h]	184	793	674	140	1420	634	238	449	228	233	203
d1, Uniform Delay [s]	32.90	15.26	14.82	33.56	16.63	13.12	31.17	24.50	31.32	31.32	29.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.22	2.42	2.31	5.37	1.48	0.12	3.63	4.35	4.40	4.28	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.52	0.47	0.67	0.54	0.04	0.69	0.80	0.73	0.73	0.36
d, Delay for Lane Group [s/veh]	42.13	17.68	17.13	38.94	18.11	13.25	34.80	28.85	35.71	35.60	30.78
Lane Group LOS	D	B	B	D	B	B	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.00	4.83	3.62	1.74	4.56	0.25	2.88	5.76	2.94	3.01	1.18
50th-Percentile Queue Length [ft/ln]	75.08	120.79	90.53	43.60	113.99	6.24	72.08	143.93	73.55	75.19	29.39
95th-Percentile Queue Length [veh/ln]	5.41	8.44	6.52	3.14	8.06	0.45	5.19	9.69	5.30	5.41	2.12
95th-Percentile Queue Length [ft/ln]	135.15	210.92	162.96	78.48	201.54	11.22	129.74	242.30	132.38	135.35	52.91

Movement, Approach, & Intersection Results

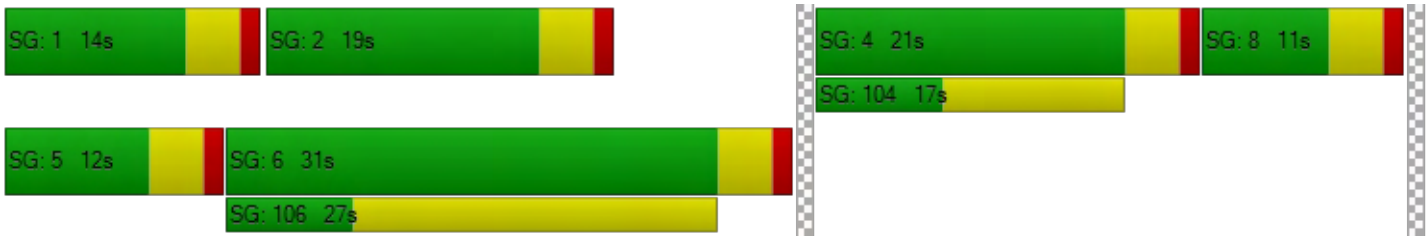
d_M, Delay for Movement [s/veh]	42.13	17.68	17.13	38.94	18.11	13.25	34.80	34.80	28.85	35.68	35.60	30.78
Movement LOS	D	B	B	D	B	B	C	C	C	D	D	C
d_A, Approach Delay [s/veh]	21.74			20.15			30.73			34.78		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	24.93											
Intersection LOS	C											
Intersection V/C	0.667											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	27.31	27.31	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.065	2.410	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	720	187	453
d_b, Bicycle Delay [s]	24.00	15.36	30.83	22.43
l_b,int, Bicycle LOS Score for Intersection	3.008	2.291	2.421	2.233
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.462

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	497	753	0	0	226	424	0	0	0	364	9	386
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	206	0	0	151	101	0	0	0	103	0	17
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	575	959	0	0	377	525	0	0	0	467	9	403
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	154	258	0	0	101	141	0	0	0	125	2	108
Total Analysis Volume [veh/h]	618	1030	0	0	405	564	0	0	0	502	10	433
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	42	0	0	21	0	0	0	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	65	65	65		65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	14	45	26		12	12	12
g / C, Green / Cycle	0.22	0.69	0.41		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.19	0.21	0.08		0.15	0.14	0.14
s, saturation flow rate [veh/h]	3329	4903	4903		3329	1540	1530
c, Capacity [veh/h]	737	3367	1981		634	293	291
d1, Uniform Delay [s]	24.25	4.05	12.61		25.14	24.93	24.96
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.65	0.24	0.23		2.28	3.95	4.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.31	0.20		0.79	0.76	0.76
d, Delay for Lane Group [s/veh]	26.89	4.28	12.85		27.41	28.88	29.03
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.26	0.98	1.10		3.68	3.37	3.37
50th-Percentile Queue Length [ft/ln]	106.58	24.53	27.52		91.91	84.15	84.34
95th-Percentile Queue Length [veh/ln]	7.65	1.77	1.98		6.62	6.06	6.07
95th-Percentile Queue Length [ft/ln]	191.23	44.15	49.53		165.44	151.46	151.81

Movement, Approach, & Intersection Results

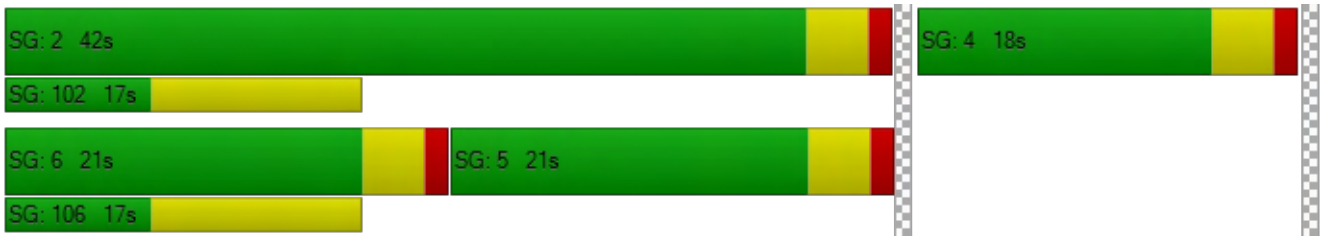
d_M, Delay for Movement [s/veh]	26.89	4.28	0.00	0.00	12.85	0.00	0.00	0.00	0.00	27.41	28.88	28.96
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	12.76			12.85			0.00			28.14		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	17.62											
Intersection LOS	B											
Intersection V/C	0.462											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	22.43	22.43
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.003	2.343
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1169	523	0	431
d_b, Bicycle Delay [s]	5.61	17.72	32.50	20.01
l_b,int, Bicycle LOS Score for Intersection	2.466	1.782	4.132	3.119
Bicycle LOS	B	A	D	C

Sequence

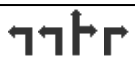
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.709

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	905	460	276	561	0	365	3	389	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	193	100	35	219	0	91	0	83	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1098	560	311	780	0	456	3	472	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	285	145	81	203	0	118	1	123	0	0	0
Total Analysis Volume [veh/h]	0	1141	582	323	811	0	474	3	490	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	41.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	32	0	12	44	0	0	16	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	29	29	8	40	12	12	12	
g / C, Green / Cycle	0.48	0.48	0.13	0.67	0.19	0.19	0.19	
(v / s)_i Volume / Saturation Flow Rate	0.23	0.38	0.10	0.17	0.14	0.16	0.16	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	3329	1533	1530	
c, Capacity [veh/h]	2339	730	429	3297	648	298	298	
d1, Uniform Delay [s]	10.72	13.28	25.28	3.87	22.75	23.25	23.26	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.73	8.85	2.69	0.18	1.62	5.78	5.84	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.49	0.80	0.75	0.25	0.73	0.83	0.83	
d, Delay for Lane Group [s/veh]	11.45	22.13	27.96	4.05	24.37	29.03	29.10	
Lane Group LOS	B	C	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	2.71	6.63	2.13	0.67	3.07	3.58	3.59	
50th-Percentile Queue Length [ft/ln]	67.69	165.63	53.13	16.69	76.65	89.59	89.72	
95th-Percentile Queue Length [veh/ln]	4.87	10.85	3.83	1.20	5.52	6.45	6.46	
95th-Percentile Queue Length [ft/ln]	121.84	271.16	95.63	30.05	137.97	161.26	161.49	

Movement, Approach, & Intersection Results

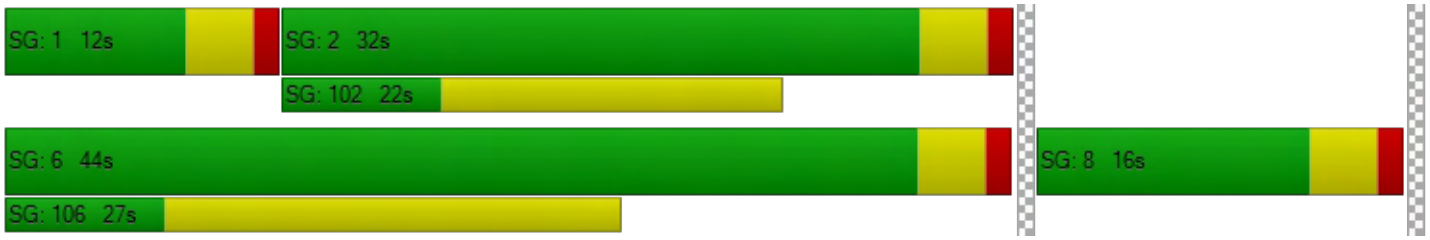
d_M, Delay for Movement [s/veh]	0.00	11.45	22.13	27.96	4.05	0.00	24.37	29.03	29.07	0.00	0.00	0.00
Movement LOS		B	C	C	A		C	C	C			
d_A, Approach Delay [s/veh]	15.06			10.86			26.76			0.00		
Approach LOS	B			B			C			A		
d_I, Intersection Delay [s/veh]	16.77											
Intersection LOS	B											
Intersection V/C	0.709											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.344	2.135
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	1333	400	0
d_b, Bicycle Delay [s]	8.53	3.33	19.20	30.00
l_b,int, Bicycle LOS Score for Intersection	2.507	2.183	3.155	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	31.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.787

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	50	295	190	78	237	13	35	370	72	141	197	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	18	1	41	13	31	65	19	0	1	26	67
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	313	191	119	250	44	100	389	72	142	223	87
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	85	52	32	68	12	27	105	19	38	60	24
Total Analysis Volume [veh/h]	56	338	206	129	270	48	108	420	78	153	241	94
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	29	0	12	29	0	17	24	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	34	8	36	36	6	14	14	9	16	16
g / C, Green / Cycle	0.06	0.42	0.09	0.45	0.45	0.08	0.17	0.17	0.11	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.03	0.32	0.08	0.15	0.03	0.06	0.14	0.14	0.09	0.10	0.10
s, saturation flow rate [veh/h]	1714	1687	1714	1800	1530	1714	1800	1704	1714	1800	1632
c, Capacity [veh/h]	110	710	163	813	691	140	314	297	190	366	332
d1, Uniform Delay [s]	36.33	19.88	35.53	14.20	12.46	36.09	31.87	31.91	34.81	28.17	28.24
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.65	7.76	8.42	1.10	0.19	8.61	5.08	5.56	7.72	0.96	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.77	0.79	0.33	0.07	0.77	0.81	0.82	0.80	0.47	0.49
d, Delay for Lane Group [s/veh]	39.99	27.64	43.95	15.30	12.65	44.70	36.95	37.47	42.53	29.12	29.34
Lane Group LOS	D	C	D	B	B	D	D	D	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.11	8.99	2.70	2.98	0.46	2.28	4.84	4.66	3.14	2.82	2.64
50th-Percentile Queue Length [ft/ln]	27.79	224.75	67.38	74.52	11.59	57.04	121.10	116.52	78.39	70.54	65.93
95th-Percentile Queue Length [veh/ln]	2.00	13.91	4.85	5.37	0.83	4.11	8.45	8.20	5.64	5.08	4.75
95th-Percentile Queue Length [ft/ln]	50.02	347.68	121.28	134.13	20.86	102.67	211.33	205.03	141.10	126.98	118.67

Movement, Approach, & Intersection Results

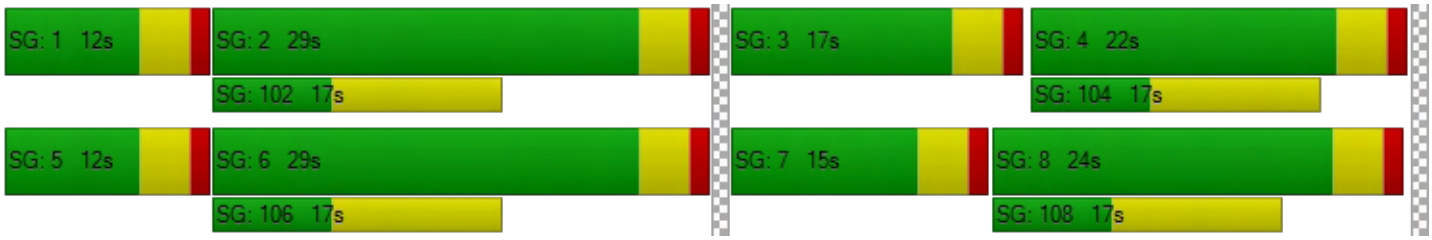
d_M, Delay for Movement [s/veh]	39.99	27.64	27.64	43.95	15.30	12.65	44.70	37.15	37.47	42.53	29.19	29.34
Movement LOS	D	C	C	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	28.79			23.28			38.54			33.40		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	31.45											
Intersection LOS	C											
Intersection V/C	0.787											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.527	2.582	2.571	2.657
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	625	625	500	450
d_b, Bicycle Delay [s]	18.91	18.91	22.50	24.03
l_b,int, Bicycle LOS Score for Intersection	2.550	2.297	2.060	1.962
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



YEAR 2022 WITH PROJECT

WITH RECIPRICAL ACCESS

WITH IMPROVEMENTS

Westgrove Apartments

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Report File: G:\...\AMOYp_PH2_IMPRV.pdf

Scenario 2 Opening Year (2022) With Project
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	SB Left	0.584	25.3	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	0.522	15.5	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.558	15.8	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.433	24.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	25.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.584

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	242	527	109	43	258	11	5	17	98	83	69	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	72	94	37	11	66	9	3	11	27	117	13	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	314	621	146	54	324	20	8	28	125	200	82	63
Peak Hour Factor	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846	0.9846
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	158	37	14	82	5	2	7	32	51	21	16
Total Analysis Volume [veh/h]	319	631	148	55	329	20	8	28	127	203	83	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	22	38	0	15	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	48	48	5	35	35	7	28	9	9	9
g / C, Green / Cycle	0.21	0.56	0.56	0.06	0.41	0.41	0.08	0.33	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.19	0.35	0.10	0.03	0.10	0.01	0.02	0.08	0.08	0.08	0.04
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1780	1530	1714	1762	1530
c, Capacity [veh/h]	355	1006	855	105	1415	632	144	513	190	196	170
d1, Uniform Delay [s]	32.89	12.77	9.18	38.78	16.24	14.88	36.72	20.53	36.69	36.68	35.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.18	2.96	0.44	3.98	0.38	0.09	0.89	0.25	5.60	5.41	1.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.90	0.63	0.17	0.52	0.23	0.03	0.25	0.25	0.74	0.74	0.38
d, Delay for Lane Group [s/veh]	41.07	15.73	9.62	42.76	16.63	14.97	37.61	20.78	42.28	42.09	36.51
Lane Group LOS	D	B	A	D	B	B	D	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.76	7.47	1.22	1.18	1.95	0.22	0.70	1.72	2.98	3.05	1.23
50th-Percentile Queue Length [ft/ln]	168.99	186.66	30.60	29.39	48.68	5.62	17.58	43.01	74.56	76.24	30.79
95th-Percentile Queue Length [veh/ln]	11.02	11.95	2.20	2.12	3.51	0.40	1.27	3.10	5.37	5.49	2.22
95th-Percentile Queue Length [ft/ln]	275.59	298.69	55.09	52.90	87.63	10.11	31.64	77.42	134.22	137.24	55.42

Movement, Approach, & Intersection Results

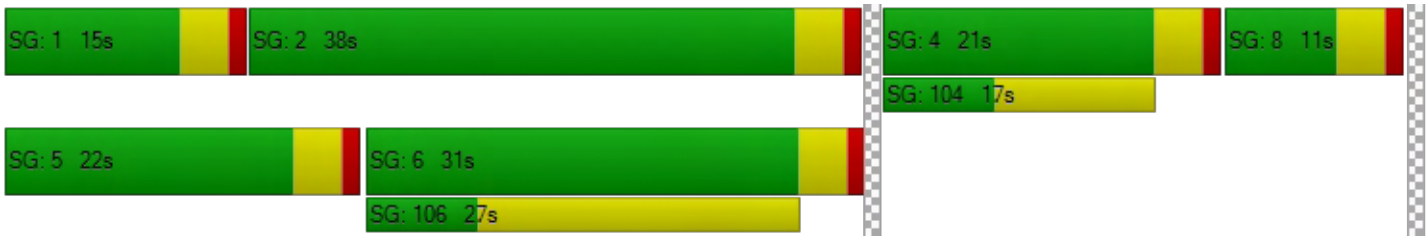
d_M, Delay for Movement [s/veh]	41.07	15.73	9.62	42.76	16.63	14.97	37.61	37.61	20.78	42.22	42.09	36.51
Movement LOS	D	B	A	D	B	B	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	22.27			20.10			24.50			41.15		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	25.29											
Intersection LOS	C											
Intersection V/C	0.584											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	32.21	32.21	0.00
I_p,int, Pedestrian LOS Score for Intersection	0.000	3.026	2.342	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	635	165	400
d_b, Bicycle Delay [s]	15.30	19.79	35.79	27.20
I_b,int, Bicycle LOS Score for Intersection	3.371	1.893	1.829	2.137
Bicycle LOS	C	A	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.522

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	605	595	0	0	567	701	0	0	0	253	2	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	62	164	0	0	104	106	0	0	0	72	0	39
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	667	759	0	0	671	807	0	0	0	325	2	184
Peak Hour Factor	0.9255	0.9255	0.9500	0.9500	0.9255	0.9255	0.9500	0.9500	0.9500	0.9255	0.9255	0.9255
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	180	205	0	0	181	218	0	0	0	88	1	50
Total Analysis Volume [veh/h]	721	820	0	0	725	872	0	0	0	351	2	199
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	47	0	0	26	0	0	0	0	0	13	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	15	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	60	60	60		60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	44	25		8	8	8
g / C, Green / Cycle	0.25	0.73	0.41		0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.22	0.17	0.15		0.11	0.07	0.07
s, saturation flow rate [veh/h]	3329	4903	4903		3329	1535	1530
c, Capacity [veh/h]	844	3565	1996		466	215	214
d1, Uniform Delay [s]	21.39	2.69	12.41		24.88	23.82	23.82
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	2.59	0.15	0.51		2.50	1.59	1.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.23	0.36		0.75	0.47	0.47
d, Delay for Lane Group [s/veh]	23.98	2.84	12.92		27.38	25.41	25.41
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.40	0.37	1.88		2.41	1.33	1.33
50th-Percentile Queue Length [ft/ln]	110.05	9.27	47.10		60.37	33.29	33.20
95th-Percentile Queue Length [veh/ln]	7.84	0.67	3.39		4.35	2.40	2.39
95th-Percentile Queue Length [ft/ln]	196.07	16.68	84.77		108.67	59.93	59.77

Movement, Approach, & Intersection Results

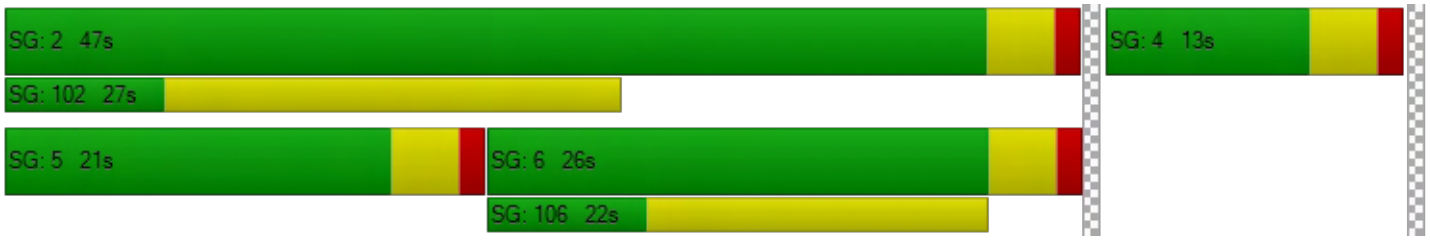
d_M, Delay for Movement [s/veh]	23.98	2.84	0.00	0.00	12.92	0.00	0.00	0.00	0.00	27.38	25.41	25.41
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	12.73			12.92			0.00			26.66		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	15.51											
Intersection LOS	B											
Intersection V/C	0.522											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.045	2.243
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1433	733	0	300
d_b, Bicycle Delay [s]	2.41	12.03	30.00	21.68
l_b,int, Bicycle LOS Score for Intersection	2.407	1.958	4.132	2.470
Bicycle LOS	B	A	D	B

Sequence

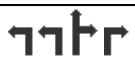
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.558

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	710	296	81	537	0	560	3	492	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	135	71	28	148	0	91	0	57	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	845	367	109	685	0	651	3	549	0	0	0
Peak Hour Factor	0.9500	0.9309	0.9309	0.9309	0.9309	0.9500	0.9309	0.9309	0.9309	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	227	99	29	184	0	175	1	147	0	0	0
Total Analysis Volume [veh/h]	0	908	394	117	736	0	699	3	590	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	39.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	27	0	11	38	0	0	22	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	26	26	6	36	16	16	16	
g / C, Green / Cycle	0.44	0.44	0.10	0.61	0.26	0.26	0.26	
(v / s)_i Volume / Saturation Flow Rate	0.19	0.26	0.04	0.15	0.21	0.19	0.19	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	3329	1532	1530	
c, Capacity [veh/h]	2140	668	339	2966	873	402	401	
d1, Uniform Delay [s]	11.72	12.87	25.15	5.53	20.73	20.31	20.31	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.62	3.80	0.60	0.20	1.76	2.67	2.69	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.42	0.59	0.34	0.25	0.80	0.74	0.74	
d, Delay for Lane Group [s/veh]	12.34	16.67	25.75	5.73	22.49	22.98	23.00	
Lane Group LOS	B	B	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	2.28	3.79	0.72	0.93	4.39	3.77	3.77	
50th-Percentile Queue Length [ft/ln]	57.09	94.80	18.05	23.17	109.76	94.23	94.30	
95th-Percentile Queue Length [veh/ln]	4.11	6.83	1.30	1.67	7.83	6.78	6.79	
95th-Percentile Queue Length [ft/ln]	102.75	170.64	32.48	41.70	195.67	169.61	169.74	

Movement, Approach, & Intersection Results

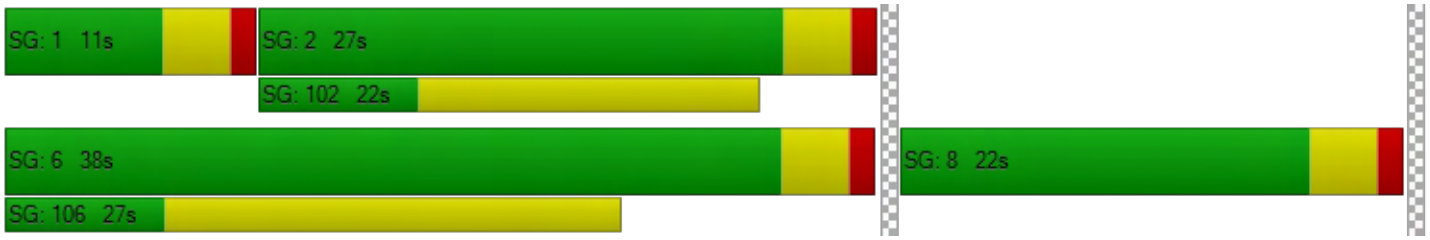
d_M, Delay for Movement [s/veh]	0.00	12.34	16.67	25.75	5.73	0.00	22.49	22.98	22.99	0.00	0.00	0.00
Movement LOS		B	B	C	A		C	C	C			
d_A, Approach Delay [s/veh]	13.65			8.47			22.72			0.00		
Approach LOS	B			A			C			A		
d_I, Intersection Delay [s/veh]	15.77											
Intersection LOS	B											
Intersection V/C	0.558											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.423	1.943
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	1133	600	0
d_b, Bicycle Delay [s]	11.41	5.63	14.70	30.00
l_b,int, Bicycle LOS Score for Intersection	2.276	2.029	3.691	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.433

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	58	133	64	23	193	31	16	84	20	136	198	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	0	64	25	51	21	30	2	2	33	21
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	146	64	87	218	82	37	114	22	138	231	42
Peak Hour Factor	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813	0.8813
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	41	18	25	62	23	10	32	6	39	66	12
Total Analysis Volume [veh/h]	66	166	73	99	247	93	42	129	25	157	262	48
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	11	21	0	17	27	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	33	6	34	34	4	7	7	8	11	11
g / C, Green / Cycle	0.07	0.47	0.09	0.49	0.49	0.06	0.10	0.10	0.12	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.14	0.06	0.14	0.06	0.02	0.04	0.04	0.09	0.09	0.09
s, saturation flow rate [veh/h]	1714	1708	1714	1800	1530	1714	1800	1701	1714	1800	1705
c, Capacity [veh/h]	127	808	149	874	743	99	173	163	199	278	263
d1, Uniform Delay [s]	31.31	11.35	31.07	10.77	9.89	31.96	30.01	30.06	30.20	27.54	27.58
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.24	0.93	4.96	0.81	0.35	2.84	1.83	2.07	6.74	1.83	2.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.30	0.66	0.28	0.13	0.42	0.45	0.47	0.79	0.57	0.58
d, Delay for Lane Group [s/veh]	34.55	12.28	36.03	11.58	10.24	34.80	31.85	32.13	36.93	29.37	29.58
Lane Group LOS	C	B	D	B	B	C	C	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.11	2.06	1.70	2.03	0.71	0.72	1.23	1.22	2.74	2.38	2.30
50th-Percentile Queue Length [ft/ln]	27.73	51.55	42.53	50.81	17.66	17.89	30.77	30.38	68.39	59.51	57.51
95th-Percentile Queue Length [veh/ln]	2.00	3.71	3.06	3.66	1.27	1.29	2.22	2.19	4.92	4.28	4.14
95th-Percentile Queue Length [ft/ln]	49.91	92.79	76.56	91.46	31.79	32.21	55.39	54.68	123.11	107.12	103.52

Movement, Approach, & Intersection Results

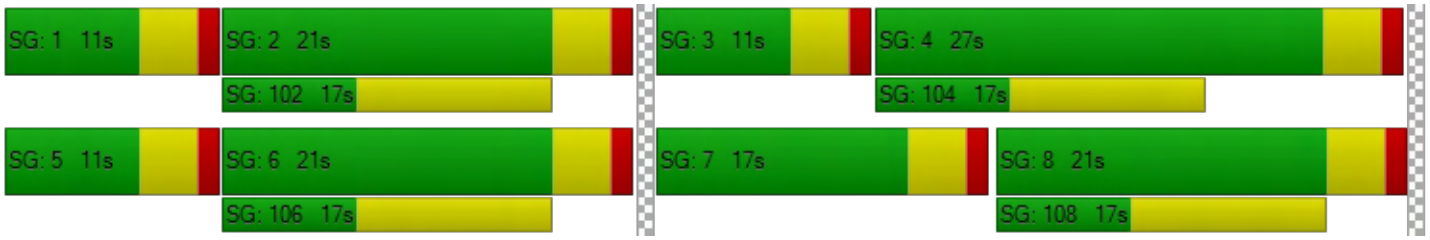
d_M, Delay for Movement [s/veh]	34.55	12.28	12.28	36.03	11.58	10.24	34.80	31.96	32.13	36.93	29.46	29.58
Movement LOS	C	B	B	D	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	17.10			16.81			32.59			31.98		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	24.11											
Intersection LOS	C											
Intersection V/C	0.433											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.386	2.489	2.466	2.511
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	486	657
d_b, Bicycle Delay [s]	20.06	20.06	20.06	15.78
l_b,int, Bicycle LOS Score for Intersection	2.063	2.284	1.721	1.945
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Westgrove Apartments

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Report File: G:\...\PMOYp_PH2_IMPRV.pdf

Scenario 2 Opening Year (2022) With Project
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.667	25.4	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Right	0.464	18.2	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.713	17.0	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Left	0.797	31.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.667

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	106	268	211	72	574	20	9	117	257	179	68	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	35	110	116	18	133	4	9	16	72	73	14	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	141	378	327	90	707	24	18	133	329	252	82	69
Peak Hour Factor	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204	0.9204
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	103	89	24	192	7	5	36	89	68	22	19
Total Analysis Volume [veh/h]	153	411	355	98	768	26	20	145	357	274	89	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	12	32	0	11	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	75	75	75	75	75	75	75	75	75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	33	33	6	31	31	9	21	10	10	10
g / C, Green / Cycle	0.11	0.44	0.44	0.08	0.42	0.42	0.13	0.29	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.09	0.23	0.23	0.06	0.22	0.02	0.09	0.23	0.10	0.10	0.05
s, saturation flow rate [veh/h]	1714	1800	1530	1714	3427	1530	1789	1530	1714	1755	1530
c, Capacity [veh/h]	184	794	675	142	1427	637	224	437	237	243	212
d1, Uniform Delay [s]	32.90	15.22	15.29	33.57	16.51	13.03	31.72	25.03	31.20	31.20	29.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.22	2.40	2.92	5.88	1.46	0.12	4.69	5.05	4.88	4.77	1.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.52	0.53	0.69	0.54	0.04	0.74	0.82	0.76	0.76	0.35
d, Delay for Lane Group [s/veh]	42.13	17.63	18.21	39.46	17.97	13.15	36.41	30.09	36.08	35.97	30.38
Lane Group LOS	D	B	B	D	B	B	D	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.00	4.83	4.28	1.85	4.54	0.25	2.96	5.90	3.21	3.28	1.20
50th-Percentile Queue Length [ft/ln]	75.08	120.74	106.96	46.31	113.57	6.21	74.04	147.39	80.34	82.03	29.93
95th-Percentile Queue Length [veh/ln]	5.41	8.43	7.67	3.33	8.04	0.45	5.33	9.88	5.78	5.91	2.16
95th-Percentile Queue Length [ft/ln]	135.15	210.84	191.76	83.35	200.95	11.19	133.27	246.94	144.61	147.65	53.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.13	17.63	18.21	39.46	17.97	13.15	36.41	36.41	30.09	36.04	35.97	30.38
Movement LOS	D	B	B	D	B	B	D	D	C	D	D	C
d_A, Approach Delay [s/veh]	21.93			20.19			32.09			35.06		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	25.36											
Intersection LOS	C											
Intersection V/C	0.667											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	27.31	27.31	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.066	2.410	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	747	720	187	453
d_b, Bicycle Delay [s]	14.73	15.36	30.83	22.43
l_b,int, Bicycle LOS Score for Intersection	3.076	2.296	2.421	2.282
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

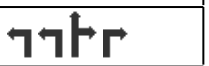


Intersection Level Of Service Report

Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.464

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	497	753	0	0	226	424	0	0	0	364	9	386
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	78	233	0	0	163	115	0	0	0	103	0	28
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	575	986	0	0	389	539	0	0	0	467	9	414
Peak Hour Factor	0.9308	0.9308	0.9500	0.9500	0.9308	0.9308	0.9500	0.9500	0.9500	0.9308	0.9308	0.9308
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	154	265	0	0	104	145	0	0	0	125	2	111
Total Analysis Volume [veh/h]	618	1059	0	0	418	579	0	0	0	502	10	445
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	18	44	0	0	26	0	0	0	0	0	16	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	15	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	65	65	65		65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	14	45	27		12	12	12
g / C, Green / Cycle	0.21	0.70	0.42		0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.19	0.22	0.09		0.15	0.15	0.15
s, saturation flow rate [veh/h]	3329	4903	4903		3329	1540	1530
c, Capacity [veh/h]	713	3409	2059		606	281	279
d1, Uniform Delay [s]	24.76	3.87	12.01		25.71	25.62	25.65
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.38	0.24	0.22		2.97	5.59	5.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.31	0.20		0.83	0.81	0.82
d, Delay for Lane Group [s/veh]	28.14	4.10	12.23		28.68	31.21	31.43
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.38	0.95	1.09		3.78	3.62	3.64
50th-Percentile Queue Length [ft/ln]	109.62	23.64	27.33		94.44	90.55	90.91
95th-Percentile Queue Length [veh/ln]	7.82	1.70	1.97		6.80	6.52	6.55
95th-Percentile Queue Length [ft/ln]	195.48	42.55	49.20		170.00	162.99	163.65

Movement, Approach, & Intersection Results

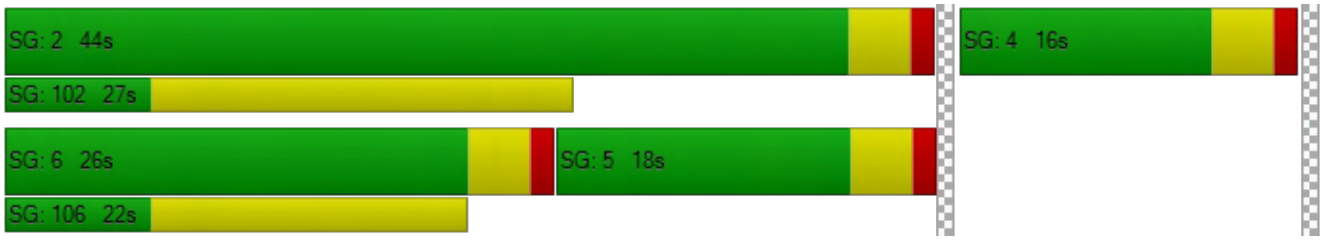
d_M, Delay for Movement [s/veh]	28.14	4.10	0.00	0.00	12.23	0.00	0.00	0.00	0.00	28.68	31.21	31.32
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	12.96			12.23			0.00			29.94		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	18.18											
Intersection LOS	B											
Intersection V/C	0.464											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	22.43	22.43
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.003	2.346
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1231	677	0	369
d_b, Bicycle Delay [s]	4.81	14.22	32.50	21.61
l_b,int, Bicycle LOS Score for Intersection	2.482	1.790	4.132	3.139
Bicycle LOS	B	A	D	C

Sequence

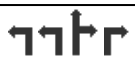
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	905	460	276	561	0	365	3	389	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	197	100	45	221	0	114	0	83	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1102	560	321	782	0	479	3	472	0	0	0
Peak Hour Factor	0.9500	0.9623	0.9623	0.9623	0.9623	0.9500	0.9623	0.9623	0.9623	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	286	145	83	203	0	124	1	123	0	0	0
Total Analysis Volume [veh/h]	0	1145	582	334	813	0	498	3	490	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	49.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	32	0	12	44	0	0	16	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	60	60	60	60	60	60	60	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	29	29	8	40	12	12	12	
g / C, Green / Cycle	0.48	0.48	0.13	0.67	0.19	0.19	0.19	
(v / s)_i Volume / Saturation Flow Rate	0.23	0.38	0.10	0.17	0.15	0.16	0.16	
s, saturation flow rate [veh/h]	4903	1530	3329	4903	3329	1533	1530	
c, Capacity [veh/h]	2324	725	439	3297	648	298	298	
d1, Uniform Delay [s]	10.86	13.43	25.20	3.87	22.94	23.25	23.25	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.75	9.15	2.75	0.18	1.95	5.76	5.82	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.49	0.80	0.76	0.25	0.77	0.83	0.83	
d, Delay for Lane Group [s/veh]	11.61	22.58	27.95	4.05	24.89	29.01	29.08	
Lane Group LOS	B	C	C	A	C	C	C	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	2.75	6.72	2.20	0.67	3.27	3.58	3.59	
50th-Percentile Queue Length [ft/ln]	68.69	168.02	54.95	16.76	81.75	89.54	89.67	
95th-Percentile Queue Length [veh/ln]	4.95	10.97	3.96	1.21	5.89	6.45	6.46	
95th-Percentile Queue Length [ft/ln]	123.64	274.31	98.90	30.16	147.14	161.17	161.41	

Movement, Approach, & Intersection Results

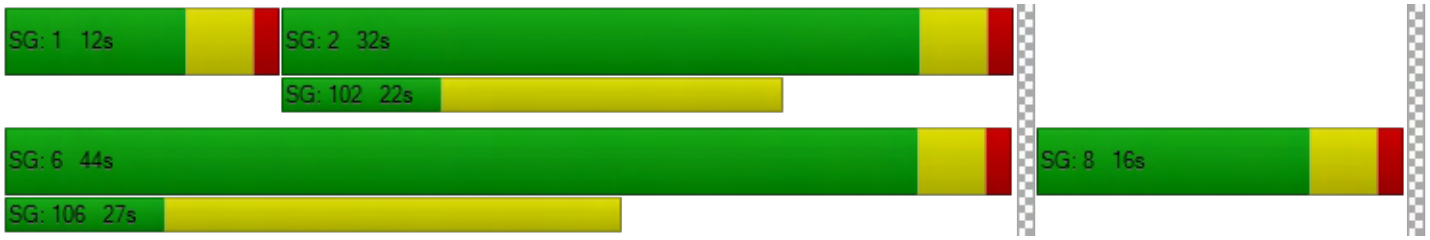
d_M, Delay for Movement [s/veh]	0.00	11.61	22.58	27.95	4.05	0.00	24.89	29.01	29.04	0.00	0.00	0.00
Movement LOS		B	C	C	A		C	C	C			
d_A, Approach Delay [s/veh]	15.31			11.01			26.96			0.00		
Approach LOS	B			B			C			A		
d_I, Intersection Delay [s/veh]	17.02											
Intersection LOS	B											
Intersection V/C	0.713											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.350	2.140
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	1333	400	0
d_b, Bicycle Delay [s]	8.53	3.33	19.20	30.00
l_b,int, Bicycle LOS Score for Intersection	2.509	2.190	3.195	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.797

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	50	295	190	78	237	13	35	370	72	141	197	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	26	1	41	18	34	66	29	0	1	45	67
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	321	191	119	255	47	101	399	72	142	242	87
Peak Hour Factor	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253	0.9253
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	87	52	32	69	13	27	108	19	38	65	24
Total Analysis Volume [veh/h]	56	347	206	129	276	51	109	431	78	153	262	94
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	29	0	12	29	0	17	24	0	15	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	34	8	36	36	7	14	14	9	16	16
g / C, Green / Cycle	0.06	0.42	0.09	0.45	0.45	0.08	0.18	0.18	0.11	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.33	0.08	0.15	0.03	0.06	0.14	0.15	0.09	0.10	0.10
s, saturation flow rate [veh/h]	1714	1689	1714	1800	1530	1714	1800	1706	1714	1800	1641
c, Capacity [veh/h]	110	705	163	807	686	141	319	302	190	370	338
d1, Uniform Delay [s]	36.33	20.23	35.53	14.41	12.62	36.06	31.75	31.79	34.81	28.19	28.26
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.65	8.53	8.42	1.15	0.21	8.57	5.11	5.57	7.72	1.04	1.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.78	0.79	0.34	0.07	0.77	0.82	0.82	0.80	0.50	0.51
d, Delay for Lane Group [s/veh]	39.99	28.76	43.95	15.57	12.83	44.63	36.86	37.35	42.53	29.23	29.44
Lane Group LOS	D	C	D	B	B	D	D	D	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.11	9.37	2.70	3.09	0.50	2.30	4.95	4.76	3.14	3.01	2.82
50th-Percentile Queue Length [ft/ln]	27.79	234.14	67.38	77.13	12.44	57.50	123.64	118.99	78.39	75.18	70.41
95th-Percentile Queue Length [veh/ln]	2.00	14.38	4.85	5.55	0.90	4.14	8.59	8.34	5.64	5.41	5.07
95th-Percentile Queue Length [ft/ln]	50.02	359.61	121.28	138.84	22.39	103.51	214.82	208.43	141.10	135.32	126.73

Movement, Approach, & Intersection Results

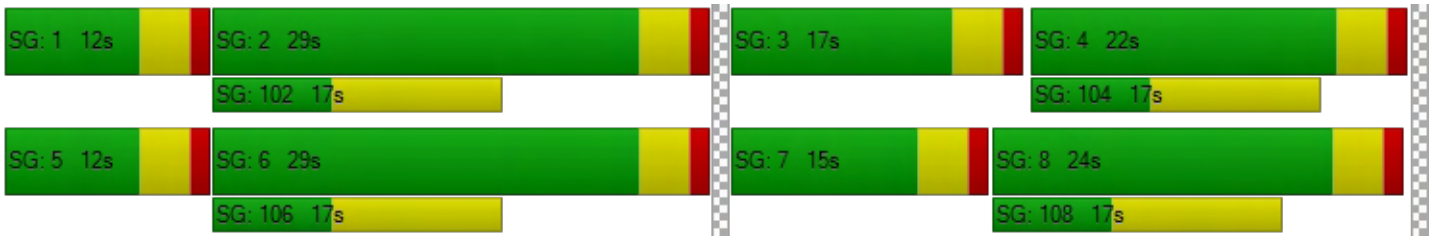
d_M, Delay for Movement [s/veh]	39.99	28.76	28.76	43.95	15.57	12.83	44.63	37.05	37.35	42.53	29.29	29.44
Movement LOS	D	C	C	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	29.80			23.29			38.43			33.30		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	31.69											
Intersection LOS	C											
Intersection V/C	0.797											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	2.532	2.587	2.582	2.666
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	625	625	500	450
d_b, Bicycle Delay [s]	18.91	18.91	22.50	24.03
l_b,int, Bicycle LOS Score for Intersection	2.564	2.312	2.069	1.980
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



GENERAL BUILDOUT (YEAR 2040) WITHOUT PROJECT

WITH IMPROVEMENTS

Westgrove Apartments

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Report File: G:\...\AMGB_ALT1_IMPRV.pdf

Scenario 1 General Buildout (Year 2040) Without Project
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	SB Left	0.587	23.6	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	0.539	15.2	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	SB Left	0.527	16.6	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.431	22.8	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	23.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	317	675	231	56	327	20	8	28	126	184	85	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	317	675	231	56	327	20	8	28	126	184	85	71
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	178	61	15	86	5	2	7	33	48	22	19
Total Analysis Volume [veh/h]	334	711	243	59	344	21	8	29	133	194	89	75
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	27	46	0	12	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	66	66	6	51	51	7	32	10	10	10
g / C, Green / Cycle	0.20	0.63	0.63	0.06	0.48	0.48	0.07	0.31	0.10	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.18	0.37	0.15	0.03	0.10	0.01	0.02	0.08	0.08	0.08	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1880	1615	1810	1865	1615
c, Capacity [veh/h]	365	1190	1011	101	1737	776	125	495	180	185	160
d1, Uniform Delay [s]	37.54	4.31	3.51	47.48	10.57	9.92	45.59	23.27	44.48	44.47	43.04
k, delay calibration	0.19	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.65	2.22	0.56	5.29	0.26	0.06	1.30	0.29	7.05	6.80	2.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.60	0.24	0.58	0.20	0.03	0.30	0.27	0.78	0.78	0.47
d, Delay for Lane Group [s/veh]	52.19	6.53	4.07	52.76	10.82	9.98	46.90	23.56	51.53	51.27	45.16
Lane Group LOS	D	A	A	D	B	A	D	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.84	3.47	0.99	1.58	1.54	0.18	0.92	2.08	3.65	3.74	1.81
50th-Percentile Queue Length [ft/ln]	220.89	86.67	24.84	39.57	38.39	4.59	22.94	51.91	91.31	93.58	45.34
95th-Percentile Queue Length [veh/ln]	13.71	6.24	1.79	2.85	2.76	0.33	1.65	3.74	6.57	6.74	3.26
95th-Percentile Queue Length [ft/ln]	342.76	156.00	44.72	71.22	69.10	8.26	41.28	93.44	164.37	168.45	81.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.19	6.53	4.07	52.76	10.82	9.98	46.90	46.90	23.56	51.46	51.27	45.16
Movement LOS	D	A	A	D	B	A	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	17.91			16.62			28.64			50.09		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	23.62											
Intersection LOS	C											
Intersection V/C	0.587											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	42.08	42.08	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.054	2.363	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	514	133	324
d_b, Bicycle Delay [s]	18.90	28.97	45.73	36.88
l_b,int, Bicycle LOS Score for Intersection	3.685	1.909	1.840	2.150
Bicycle LOS	D	A	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	15.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.539

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	762	872	0	0	709	764	0	0	0	401	3	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	762	872	0	0	709	764	0	0	0	401	3	228
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	201	229	0	0	187	201	0	0	0	106	1	60
Total Analysis Volume [veh/h]	802	918	0	0	746	804	0	0	0	422	3	240
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	24	45	0	0	21	0	0	0	0	0	15	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	70	70	70		70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	18	52	30		10	10	10
g / C, Green / Cycle	0.26	0.74	0.42		0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.23	0.18	0.14		0.12	0.08	0.08
s, saturation flow rate [veh/h]	3514	5176	5176		3514	1621	1615
c, Capacity [veh/h]	908	3814	2182		524	242	241
d1, Uniform Delay [s]	22.02	0.16	10.10		27.17	25.82	25.83
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.06	0.15	0.43		2.97	1.62	1.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33		1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.24	0.34		0.81	0.50	0.50
d, Delay for Lane Group [s/veh]	25.08	0.31	10.52		30.13	27.44	27.45
Lane Group LOS	C	A	B		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.23	0.08	1.70		3.29	1.80	1.79
50th-Percentile Queue Length [ft/ln]	130.67	2.06	42.61		82.21	45.00	44.86
95th-Percentile Queue Length [veh/ln]	8.98	0.15	3.07		5.92	3.24	3.23
95th-Percentile Queue Length [ft/ln]	224.40	3.72	76.69		147.97	81.00	80.75

Movement, Approach, & Intersection Results

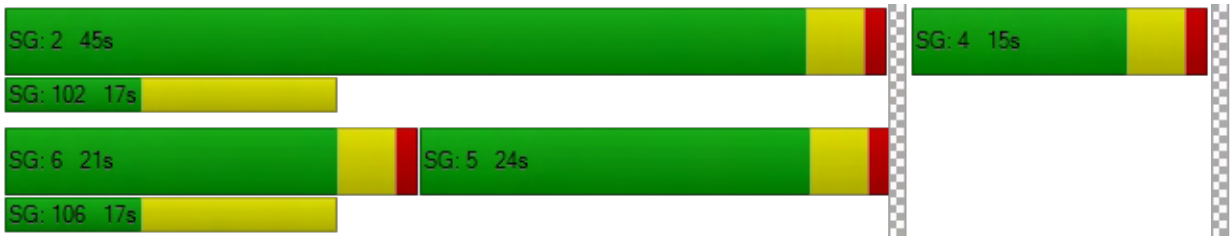
d_M, Delay for Movement [s/veh]	25.08	0.31	0.00	0.00	10.52	0.00	0.00	0.00	0.00	30.13	27.44	27.45
Movement LOS	C	A			B					C	C	C
d_A, Approach Delay [s/veh]	11.86			10.52			0.00			29.15		
Approach LOS	B			B			A			C		
d_I, Intersection Delay [s/veh]	15.22											
Intersection LOS	B											
Intersection V/C	0.539											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.093	2.279
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1171	486	0	314
d_b, Bicycle Delay [s]	6.01	20.06	35.00	24.86
l_b,int, Bicycle LOS Score for Intersection	2.506	1.970	4.132	2.657
Bicycle LOS	B	A	D	B

Sequence

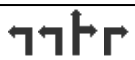
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	16.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.527

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	985	371	111	798	0	715	3	554	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	985	371	111	798	0	715	3	554	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	259	98	29	210	0	188	1	146	0	0	0
Total Analysis Volume [veh/h]	0	1037	391	117	840	0	753	3	583	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	48.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	26	0	11	37	0	0	23	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	47	47	7	58	19	19	19	
g / C, Green / Cycle	0.56	0.56	0.08	0.68	0.22	0.22	0.22	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.24	0.03	0.16	0.21	0.18	0.18	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	3514	1617	1615	
c, Capacity [veh/h]	2882	899	275	3530	787	362	362	
d1, Uniform Delay [s]	5.63	5.86	36.30	1.30	29.44	28.16	28.17	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.35	1.53	1.04	0.16	7.85	4.34	4.37	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.36	0.43	0.43	0.24	0.96	0.81	0.81	
d, Delay for Lane Group [s/veh]	5.98	7.39	37.35	1.46	37.29	32.49	32.54	
Lane Group LOS	A	A	D	A	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	1.66	2.20	1.11	0.38	7.57	5.35	5.36	
50th-Percentile Queue Length [ft/ln]	41.40	54.99	27.76	9.52	189.20	133.84	133.98	
95th-Percentile Queue Length [veh/ln]	2.98	3.96	2.00	0.69	12.08	9.15	9.16	
95th-Percentile Queue Length [ft/ln]	74.53	98.99	49.97	17.14	301.99	228.71	228.90	

Movement, Approach, & Intersection Results

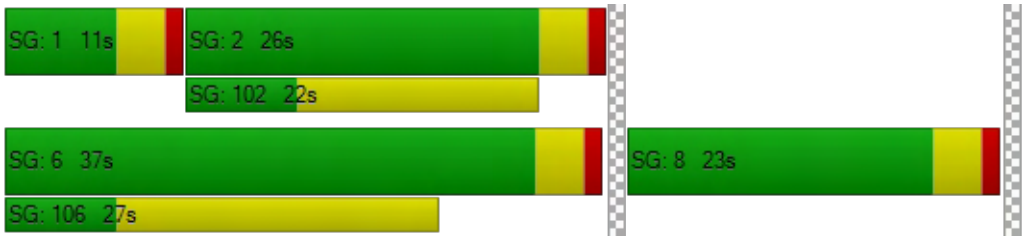
d_M, Delay for Movement [s/veh]	0.00	5.98	7.39	37.35	1.46	0.00	37.29	32.49	32.52	0.00	0.00	0.00
Movement LOS		A	A	D	A		D	C	C			
d_A, Approach Delay [s/veh]	6.37			5.84			35.20			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	16.60											
Intersection LOS	B											
Intersection V/C	0.527											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.454	1.961
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	518	776	447	0
d_b, Bicycle Delay [s]	23.35	15.91	25.62	42.50
l_b,int, Bicycle LOS Score for Intersection	2.345	2.086	3.769	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.431

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	62	198	68	51	236	66	78	151	34	145	307	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	198	68	51	236	66	78	151	34	145	307	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	52	18	13	62	17	21	40	9	38	81	14
Total Analysis Volume [veh/h]	65	208	72	54	248	69	82	159	36	153	323	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	13	21	0	17	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	34	5	34	34	6	8	8	8	10	10
g / C, Green / Cycle	0.07	0.49	0.07	0.48	0.48	0.08	0.11	0.11	0.11	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.15	0.03	0.13	0.04	0.05	0.05	0.05	0.08	0.10	0.10
s, saturation flow rate [veh/h]	1810	1818	1810	1900	1615	1810	1900	1782	1810	1900	1801
c, Capacity [veh/h]	133	881	121	909	772	148	212	199	196	264	250
d1, Uniform Delay [s]	30.42	7.24	30.75	7.37	6.85	30.10	27.98	28.03	29.24	27.43	27.46
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.74	0.95	2.54	0.74	0.23	3.25	1.59	1.80	6.56	4.03	4.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.32	0.44	0.27	0.09	0.56	0.47	0.48	0.78	0.74	0.75
d, Delay for Lane Group [s/veh]	33.16	8.19	33.29	8.11	7.08	33.35	29.57	29.83	35.80	31.45	31.87
Lane Group LOS	C	A	C	A	A	C	C	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.05	1.61	0.88	1.42	0.37	1.33	1.47	1.43	2.57	2.99	2.89
50th-Percentile Queue Length [ft/ln]	26.31	40.17	22.00	35.60	9.29	33.18	36.69	35.82	64.17	74.81	72.34
95th-Percentile Queue Length [veh/ln]	1.89	2.89	1.58	2.56	0.67	2.39	2.64	2.58	4.62	5.39	5.21
95th-Percentile Queue Length [ft/ln]	47.36	72.30	39.61	64.08	16.72	59.73	66.05	64.48	115.51	134.66	130.21

Movement, Approach, & Intersection Results

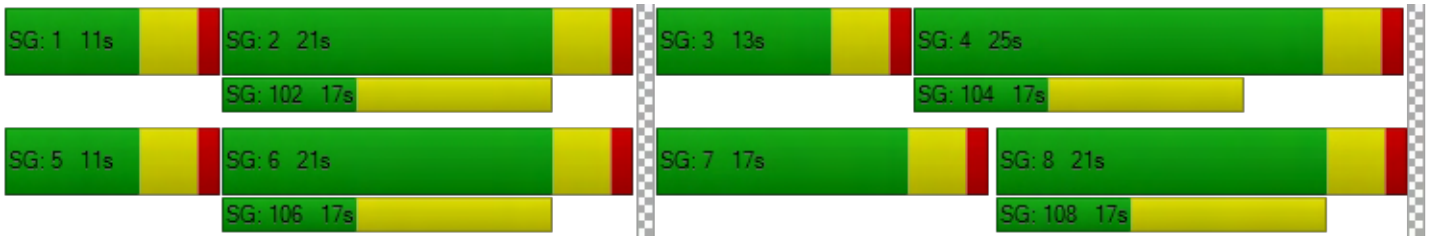
d_M, Delay for Movement [s/veh]	33.16	8.19	8.19	33.29	8.11	7.08	33.35	29.67	29.83	35.80	31.62	31.87
Movement LOS	C	A	A	C	A	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	12.89			11.58			30.78			32.84		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	22.80											
Intersection LOS	C											
Intersection V/C	0.431											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.403	2.496	2.501	2.526
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	486	600
d_b, Bicycle Delay [s]	20.06	20.06	20.06	17.15
l_b,int, Bicycle LOS Score for Intersection	2.129	2.172	1.788	2.000
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Westgrove Apartments

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Report File: G:\...\PMGB_ALT1_IMPRV.pdf

Scenario 1 General Buildout (Year 2040) Without Project
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	SB Left	0.722	22.7	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Right	0.474	17.4	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.691	18.0	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	EB Left	0.866	32.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	22.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.722

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	142	382	404	108	821	24	18	138	332	381	89	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	382	404	108	821	24	18	138	332	381	89	82
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	101	106	28	216	6	5	36	87	100	23	22
Total Analysis Volume [veh/h]	149	402	425	114	864	25	19	145	349	401	94	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	12	11	0	22	21	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	23	23	6	21	21	8	20	12	12	12
g / C, Green / Cycle	0.12	0.35	0.35	0.09	0.32	0.32	0.13	0.31	0.18	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.26	0.06	0.24	0.02	0.09	0.22	0.14	0.14	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1889	1615	1810	1843	1615
c, Capacity [veh/h]	224	668	568	173	1170	522	245	509	322	327	287
d1, Uniform Delay [s]	25.98	13.96	14.98	27.45	16.26	12.73	25.67	16.29	23.63	23.62	21.57
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.37	3.99	8.77	4.20	4.20	0.17	3.12	1.65	3.76	3.69	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.66	0.60	0.75	0.66	0.74	0.05	0.67	0.69	0.76	0.76	0.30
d, Delay for Lane Group [s/veh]	29.34	17.95	23.75	31.65	20.46	12.90	28.79	17.94	27.39	27.31	22.15
Lane Group LOS	C	B	C	C	C	B	C	B	C	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.10	3.97	4.99	1.70	4.61	0.21	2.28	3.43	3.29	3.34	1.00
50th-Percentile Queue Length [ft/ln]	52.60	99.35	124.64	42.57	115.19	5.23	57.09	85.84	82.22	83.50	24.95
95th-Percentile Queue Length [veh/ln]	3.79	7.15	8.65	3.07	8.13	0.38	4.11	6.18	5.92	6.01	1.80
95th-Percentile Queue Length [ft/ln]	94.69	178.84	216.19	76.63	203.20	9.41	102.76	154.52	148.00	150.29	44.91

Movement, Approach, & Intersection Results

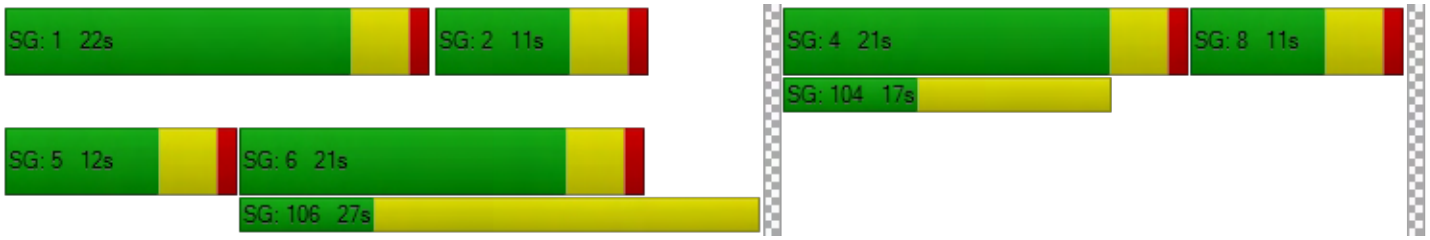
d_M, Delay for Movement [s/veh]	29.34	17.95	23.75	31.65	20.46	12.90	28.79	28.79	17.94	27.36	27.31	22.15
Movement LOS	C	B	C	C	C	B	C	C	B	C	C	C
d_A, Approach Delay [s/veh]	22.21			21.54			21.41			26.58		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	22.69											
Intersection LOS	C											
Intersection V/C	0.722											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	22.43	22.43	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.077	2.399	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	215	523	215	523
d_b, Bicycle Delay [s]	25.88	17.72	25.88	17.72
l_b,int, Bicycle LOS Score for Intersection	3.170	2.387	2.406	2.518
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	17.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.474

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	668	1061	0	0	477	723	0	0	0	464	10	413
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	668	1061	0	0	477	723	0	0	0	464	10	413
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	279	0	0	126	190	0	0	0	122	3	109
Total Analysis Volume [veh/h]	703	1117	0	0	502	761	0	0	0	488	11	435
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	22	43	0	0	21	0	0	0	0	0	17	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	75	75	75		75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	17	55	34		12	12	12
g / C, Green / Cycle	0.22	0.73	0.45		0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.20	0.22	0.10		0.14	0.14	0.14
s, saturation flow rate [veh/h]	3514	5176	5176		3514	1627	1615
c, Capacity [veh/h]	790	3767	2327		582	270	268
d1, Uniform Delay [s]	25.40	0.31	8.95		28.29	28.23	28.26
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	3.69	0.20	0.21		3.30	6.39	6.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33		1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.30	0.22		0.84	0.83	0.83
d, Delay for Lane Group [s/veh]	29.10	0.51	9.16		31.59	34.63	34.90
Lane Group LOS	C	A	A		C	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.29	0.16	1.08		4.07	3.95	3.96
50th-Percentile Queue Length [ft/ln]	132.26	3.91	26.98		101.71	98.72	99.06
95th-Percentile Queue Length [veh/ln]	9.06	0.28	1.94		7.32	7.11	7.13
95th-Percentile Queue Length [ft/ln]	226.56	7.04	48.57		183.08	177.70	178.31

Movement, Approach, & Intersection Results

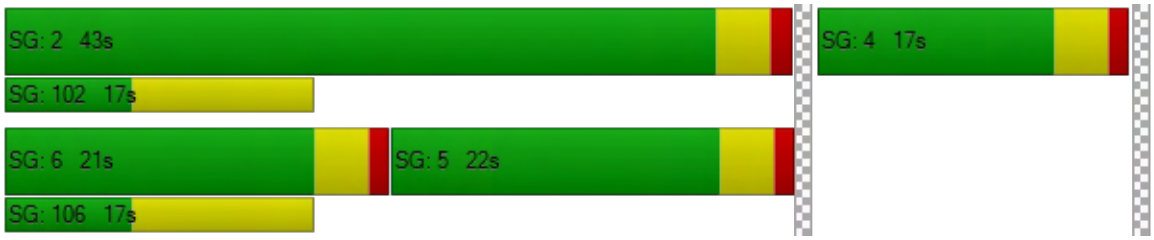
d_M, Delay for Movement [s/veh]	29.10	0.51	0.00	0.00	9.16	0.00	0.00	0.00	0.00	31.59	34.63	34.77
Movement LOS	C	A			A					C	C	C
d_A, Approach Delay [s/veh]	11.56			9.16			0.00			33.11		
Approach LOS	B			A			A			C		
d_I, Intersection Delay [s/veh]	17.37											
Intersection LOS	B											
Intersection V/C	0.474											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.053	2.349
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1040	453	0	347
d_b, Bicycle Delay [s]	8.64	22.43	37.50	25.63
l_b,int, Bicycle LOS Score for Intersection	2.561	1.836	4.132	3.101
Bicycle LOS	B	A	D	C

Sequence

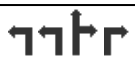
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	18.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.691

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	1260	560	367	799	0	490	4	491	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1260	560	367	799	0	490	4	491	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	332	147	97	210	0	129	1	129	0	0	0
Total Analysis Volume [veh/h]	0	1326	589	386	841	0	516	4	517	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	41.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	31	0	13	44	0	0	16	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	75	75	75	75	75	75	75	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	9	55	12	12	12	
g / C, Green / Cycle	0.56	0.56	0.12	0.73	0.16	0.16	0.16	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.36	0.11	0.16	0.15	0.16	0.16	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	3514	1619	1615	
c, Capacity [veh/h]	2884	900	428	3790	567	261	261	
d1, Uniform Delay [s]	5.25	6.05	31.05	0.24	28.98	29.49	29.51	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.53	3.70	7.16	0.14	6.01	25.16	25.73	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.65	0.90	0.22	0.91	1.00	1.00	
d, Delay for Lane Group [s/veh]	5.78	9.75	38.21	0.38	34.99	54.66	55.24	
Lane Group LOS	A	A	D	A	C	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	1.83	3.36	3.46	0.10	4.57	6.03	6.06	
50th-Percentile Queue Length [ft/ln]	45.87	84.02	86.62	2.42	114.23	150.65	151.61	
95th-Percentile Queue Length [veh/ln]	3.30	6.05	6.24	0.17	8.07	10.05	10.10	
95th-Percentile Queue Length [ft/ln]	82.56	151.24	155.92	4.35	201.87	251.29	252.58	

Movement, Approach, & Intersection Results

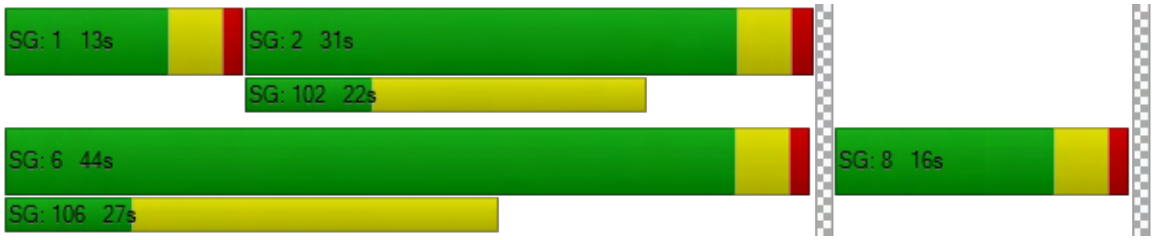
d_M, Delay for Movement [s/veh]	0.00	5.78	9.75	38.21	0.38	0.00	34.99	54.66	54.95	0.00	0.00	0.00
Movement LOS		A	A	D	A		C	D	D			
d_A, Approach Delay [s/veh]	7.00			12.28			45.02			0.00		
Approach LOS	A			B			D			A		
d_I, Intersection Delay [s/veh]	17.98											
Intersection LOS	B											
Intersection V/C	0.691											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.374	2.182
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	720	1067	320	0
d_b, Bicycle Delay [s]	15.36	8.17	26.46	37.50
l_b,int, Bicycle LOS Score for Intersection	2.613	2.234	3.271	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	32.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.866

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	91	393	204	154	346	78	112	538	78	151	341	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	393	204	154	346	78	112	538	78	151	341	47
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	103	54	41	91	21	29	142	21	40	90	12
Total Analysis Volume [veh/h]	96	414	215	162	364	82	118	566	82	159	359	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	30	0	16	31	0	18	24	0	15	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	34	9	37	37	7	17	17	9	19	19
g / C, Green / Cycle	0.07	0.39	0.11	0.43	0.43	0.08	0.20	0.20	0.11	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.35	0.09	0.19	0.05	0.07	0.17	0.17	0.09	0.11	0.11
s, saturation flow rate [veh/h]	1810	1792	1810	1900	1615	1810	1900	1817	1810	1900	1821
c, Capacity [veh/h]	136	704	199	813	691	152	382	365	196	427	410
d1, Uniform Delay [s]	37.43	18.69	35.49	12.48	10.89	37.03	30.10	30.11	35.61	25.79	25.81
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.59	16.07	7.73	1.78	0.35	8.11	6.03	6.36	7.84	0.86	0.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	0.89	0.81	0.45	0.12	0.77	0.87	0.87	0.81	0.49	0.49
d, Delay for Lane Group [s/veh]	44.02	34.76	43.22	14.26	11.24	45.14	36.13	36.47	43.46	26.64	26.72
Lane Group LOS	D	C	D	B	B	D	D	D	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.05	10.79	3.40	3.57	0.70	2.55	6.17	5.94	3.35	3.17	3.07
50th-Percentile Queue Length [ft/ln]	51.32	269.84	84.98	89.16	17.55	63.84	154.18	148.60	83.71	79.28	76.73
95th-Percentile Queue Length [veh/ln]	3.69	16.18	6.12	6.42	1.26	4.60	10.24	9.94	6.03	5.71	5.52
95th-Percentile Queue Length [ft/ln]	92.37	404.54	152.97	160.49	31.58	114.91	256.00	248.55	150.68	142.70	138.12

Movement, Approach, & Intersection Results

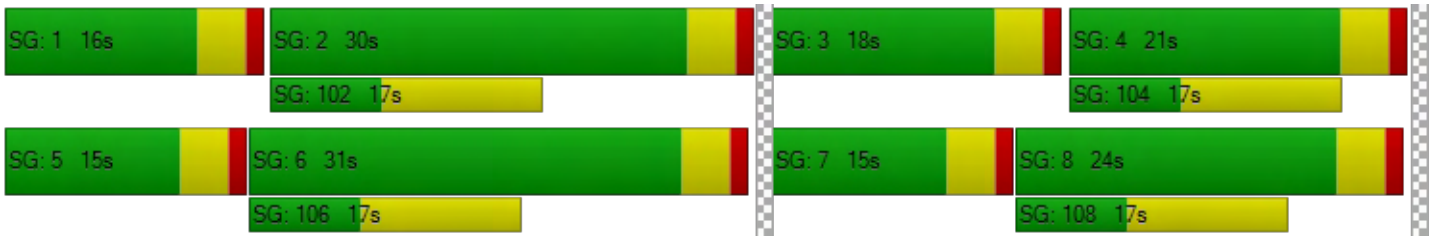
d_M, Delay for Movement [s/veh]	44.02	34.76	34.76	43.22	14.26	11.24	45.14	36.27	36.47	43.46	26.67	26.72
Movement LOS	D	C	C	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	35.98			21.57			37.66			31.38		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	32.20											
Intersection LOS	C											
Intersection V/C	0.866											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	2.614	2.644	2.678	2.738
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	612	635	471	400
d_b, Bicycle Delay [s]	20.48	19.79	24.85	27.20
l_b,int, Bicycle LOS Score for Intersection	2.756	2.563	2.192	2.027
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



GENERAL BUILDOUT (YEAR 2040) WITH PROJECT WITH IMPROVEMENTS

Westgrove Apartments

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Report File: G:\...\AMGBp_ALT1_IMPRV.pdf

Scenario 2 General Buildout (Year 2040) With Project
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	SB Left	0.600	24.4	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	0.543	16.7	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Left	0.534	17.0	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.440	23.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	317	675	231	56	327	20	8	28	126	184	85	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	1	0	0	0	0	0	41	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	317	675	244	57	327	20	8	28	126	225	85	75
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	178	64	15	86	5	2	7	33	59	22	20
Total Analysis Volume [veh/h]	334	711	257	60	344	21	8	29	133	237	89	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	27	46	0	12	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	65	65	6	49	49	7	32	12	12	12
g / C, Green / Cycle	0.20	0.62	0.62	0.06	0.47	0.47	0.07	0.31	0.11	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.18	0.37	0.16	0.03	0.10	0.01	0.02	0.08	0.09	0.09	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1880	1615	1810	1857	1615
c, Capacity [veh/h]	365	1167	992	101	1695	757	125	495	201	206	179
d1, Uniform Delay [s]	37.54	4.95	4.01	47.46	11.28	10.57	45.60	23.27	43.68	43.67	41.82
k, delay calibration	0.19	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	14.65	2.37	0.63	5.39	0.27	0.07	1.30	0.29	7.27	7.07	1.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.61	0.26	0.59	0.20	0.03	0.30	0.27	0.80	0.80	0.44
d, Delay for Lane Group [s/veh]	52.19	7.32	4.65	52.85	11.55	10.64	46.90	23.56	50.95	50.75	43.53
Lane Group LOS	D	A	A	D	B	B	D	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.84	3.85	1.17	1.61	1.61	0.19	0.92	2.08	4.18	4.28	1.86
50th-Percentile Queue Length [ft/ln]	220.89	96.31	29.20	40.27	40.34	4.81	22.94	51.91	104.54	106.94	46.60
95th-Percentile Queue Length [veh/ln]	13.71	6.93	2.10	2.90	2.90	0.35	1.65	3.74	7.53	7.67	3.35
95th-Percentile Queue Length [ft/ln]	342.76	173.35	52.57	72.49	72.61	8.66	41.29	93.44	188.17	191.74	83.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.19	7.32	4.65	52.85	11.55	10.64	46.90	46.90	23.56	50.88	50.75	43.53
Movement LOS	D	A	A	D	B	B	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	18.30			17.34			28.64			49.42		
Approach LOS	B			B			C			D		
d_I, Intersection Delay [s/veh]	24.36											
Intersection LOS	C											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	42.08	42.08	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.055	2.363	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	514	133	324
d_b, Bicycle Delay [s]	18.90	28.97	45.73	36.88
l_b,int, Bicycle LOS Score for Intersection	3.708	1.910	1.840	2.228
Bicycle LOS	D	A	A	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

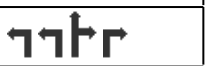


Intersection Level Of Service Report

Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.543

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	762	872	0	0	709	764	0	0	0	401	3	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	19	22	0	0	0	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	762	881	0	0	728	786	0	0	0	401	3	232
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	201	232	0	0	192	207	0	0	0	106	1	61
Total Analysis Volume [veh/h]	802	927	0	0	766	827	0	0	0	422	3	244
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	21	47	0	0	26	0	0	0	0	0	13	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	15	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	70	70	70		70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	17	53	32		9	9	9
g / C, Green / Cycle	0.24	0.76	0.46		0.13	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.23	0.18	0.15		0.12	0.08	0.08
s, saturation flow rate [veh/h]	3514	5176	5176		3514	1621	1615
c, Capacity [veh/h]	855	3911	2356		458	211	211
d1, Uniform Delay [s]	23.21	0.00	8.52		28.66	27.27	27.27
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	5.67	0.14	0.37		8.03	2.56	2.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33		1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.94	0.24	0.33		0.92	0.59	0.59
d, Delay for Lane Group [s/veh]	28.88	0.14	8.89		36.69	29.82	29.84
Lane Group LOS	C	A	A		D	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.70	0.05	1.53		3.70	1.93	1.93
50th-Percentile Queue Length [ft/ln]	142.52	1.29	38.17		92.42	48.35	48.21
95th-Percentile Queue Length [veh/ln]	9.62	0.09	2.75		6.65	3.48	3.47
95th-Percentile Queue Length [ft/ln]	240.41	2.33	68.71		166.35	87.03	86.78

Movement, Approach, & Intersection Results

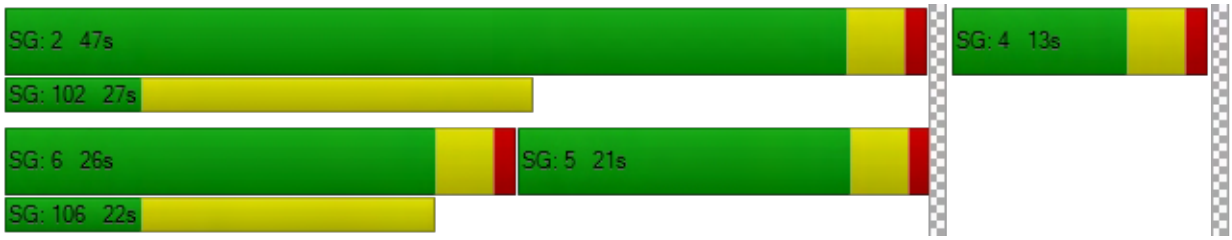
d_M, Delay for Movement [s/veh]	28.88	0.14	0.00	0.00	8.89	0.00	0.00	0.00	0.00	36.69	29.82	29.83
Movement LOS	C	A			A					D	C	C
d_A, Approach Delay [s/veh]	13.47			8.89			0.00			34.16		
Approach LOS	B			A			A			C		
d_I, Intersection Delay [s/veh]	16.74											
Intersection LOS	B											
Intersection V/C	0.543											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.093	2.280
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1229	629	0	257
d_b, Bicycle Delay [s]	5.21	16.46	35.00	26.58
l_b,int, Bicycle LOS Score for Intersection	2.511	1.981	4.132	2.663
Bicycle LOS	B	A	D	B

Sequence

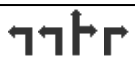
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.534

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	985	371	111	798	0	715	3	554	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	15	4	0	8	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	986	371	126	802	0	723	3	554	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	259	98	33	211	0	190	1	146	0	0	0
Total Analysis Volume [veh/h]	0	1038	391	133	844	0	761	3	583	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	53.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	26	0	11	37	0	0	23	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	47	47	7	58	19	19	19	
g / C, Green / Cycle	0.56	0.56	0.08	0.68	0.22	0.22	0.22	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.24	0.04	0.16	0.22	0.18	0.18	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	3514	1617	1615	
c, Capacity [veh/h]	2874	897	281	3530	787	362	362	
d1, Uniform Delay [s]	5.70	5.94	36.32	1.30	29.53	28.16	28.17	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.35	1.54	1.24	0.16	9.06	4.34	4.37	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.36	0.44	0.47	0.24	0.97	0.81	0.81	
d, Delay for Lane Group [s/veh]	6.05	7.48	37.57	1.46	38.59	32.49	32.54	
Lane Group LOS	A	A	D	A	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	1.68	2.22	1.27	0.38	7.80	5.35	5.36	
50th-Percentile Queue Length [ft/ln]	41.89	55.55	31.69	9.57	195.01	133.84	133.98	
95th-Percentile Queue Length [veh/ln]	3.02	4.00	2.28	0.69	12.38	9.15	9.16	
95th-Percentile Queue Length [ft/ln]	75.40	99.98	57.04	17.23	309.52	228.71	228.90	

Movement, Approach, & Intersection Results

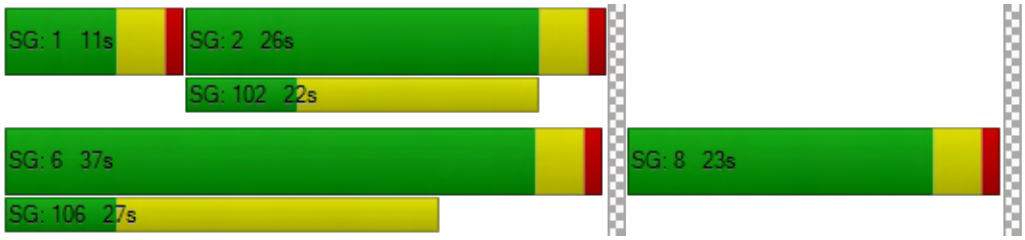
d_M, Delay for Movement [s/veh]	0.00	6.05	7.48	37.57	1.46	0.00	38.59	32.49	32.52	0.00	0.00	0.00
Movement LOS		A	A	D	A		D	C	C			
d_A, Approach Delay [s/veh]	6.44			6.37			35.95			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	17.02											
Intersection LOS	B											
Intersection V/C	0.534											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.456	1.968
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	518	776	447	0
d_b, Bicycle Delay [s]	23.35	15.91	25.62	42.50
l_b,int, Bicycle LOS Score for Intersection	2.346	2.097	3.782	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	23.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.440

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	62	198	68	51	236	66	78	151	34	145	307	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	3	8	15	8	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	198	68	51	236	69	86	166	42	145	314	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	52	18	13	62	18	23	44	11	38	83	14
Total Analysis Volume [veh/h]	68	208	72	54	248	73	91	175	44	153	331	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	14	21	0	17	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	34	5	33	33	6	8	8	8	10	10
g / C, Green / Cycle	0.07	0.48	0.07	0.47	0.47	0.08	0.12	0.12	0.11	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.15	0.03	0.13	0.05	0.05	0.06	0.06	0.08	0.10	0.11
s, saturation flow rate [veh/h]	1810	1818	1810	1900	1615	1810	1900	1772	1810	1900	1803
c, Capacity [veh/h]	136	872	121	896	761	153	222	207	196	268	254
d1, Uniform Delay [s]	30.35	7.47	30.75	7.66	7.13	30.01	27.77	27.83	29.24	27.33	27.36
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.81	0.97	2.54	0.77	0.25	3.64	1.75	2.00	6.56	4.04	4.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.32	0.44	0.28	0.10	0.59	0.50	0.52	0.78	0.74	0.75
d, Delay for Lane Group [s/veh]	33.16	8.45	33.29	8.43	7.38	33.65	29.52	29.82	35.80	31.37	31.78
Lane Group LOS	C	A	C	A	A	C	C	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.10	1.65	0.88	1.47	0.41	1.48	1.65	1.60	2.57	3.05	2.95
50th-Percentile Queue Length [ft/ln]	27.50	41.20	22.00	36.76	10.16	36.98	41.26	40.07	64.17	76.22	73.71
95th-Percentile Queue Length [veh/ln]	1.98	2.97	1.58	2.65	0.73	2.66	2.97	2.88	4.62	5.49	5.31
95th-Percentile Queue Length [ft/ln]	49.50	74.17	39.61	66.16	18.28	66.57	74.26	72.12	115.51	137.19	132.69

Movement, Approach, & Intersection Results

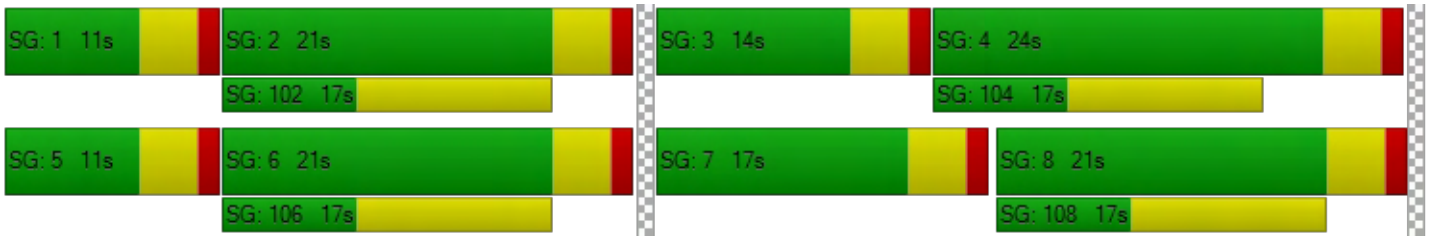
d_M, Delay for Movement [s/veh]	33.16	8.45	8.45	33.29	8.43	7.38	33.65	29.63	29.82	35.80	31.53	31.78
Movement LOS	C	A	A	C	A	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.28			11.81			30.84			32.76		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	23.09											
Intersection LOS	C											
Intersection V/C	0.440											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.407	2.500	2.515	2.533
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	486	571
d_b, Bicycle Delay [s]	20.06	20.06	20.06	17.86
l_b,int, Bicycle LOS Score for Intersection	2.134	2.178	1.815	2.007
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Westgrove Apartments

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Report File: G:\...\PMGBp_ALT1_IMPRV.pdf

Scenario 2 General Buildout (Year 2040) With Project
9/4/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.718	25.4	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Right	0.479	22.7	C
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.694	18.8	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.871	32.6	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	25.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.718

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	142	382	404	108	821	24	18	138	332	381	89	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	38	4	0	0	0	0	0	26	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	382	442	112	821	24	18	138	332	407	89	84
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	101	116	29	216	6	5	36	87	107	23	22
Total Analysis Volume [veh/h]	149	402	465	118	864	25	19	145	349	428	94	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	12	11	0	32	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	38	38	7	38	38	9	21	14	14	14
g / C, Green / Cycle	0.09	0.45	0.45	0.08	0.44	0.44	0.11	0.25	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.29	0.07	0.24	0.02	0.09	0.22	0.14	0.14	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1889	1615	1810	1841	1615
c, Capacity [veh/h]	171	858	730	153	1598	714	203	402	305	310	272
d1, Uniform Delay [s]	36.68	11.26	12.42	36.95	12.28	9.87	35.62	27.13	31.97	31.96	28.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.17	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.63	1.83	4.23	7.93	1.32	0.09	7.48	8.61	6.58	6.44	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.47	0.64	0.77	0.54	0.04	0.81	0.87	0.85	0.85	0.32
d, Delay for Lane Group [s/veh]	49.31	13.10	16.65	44.88	13.59	9.97	43.10	35.73	38.54	38.40	29.63
Lane Group LOS	D	B	B	D	B	A	D	D	D	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.39	3.68	4.86	2.54	4.01	0.20	3.43	6.40	5.04	5.11	1.44
50th-Percentile Queue Length [ft/ln]	84.66	91.88	121.62	63.59	100.30	4.94	85.66	160.07	126.00	127.73	36.07
95th-Percentile Queue Length [veh/ln]	6.10	6.62	8.48	4.58	7.22	0.36	6.17	10.55	8.72	8.82	2.60
95th-Percentile Queue Length [ft/ln]	152.38	165.39	212.05	114.45	180.54	8.89	154.20	263.82	218.04	220.41	64.92

Movement, Approach, & Intersection Results

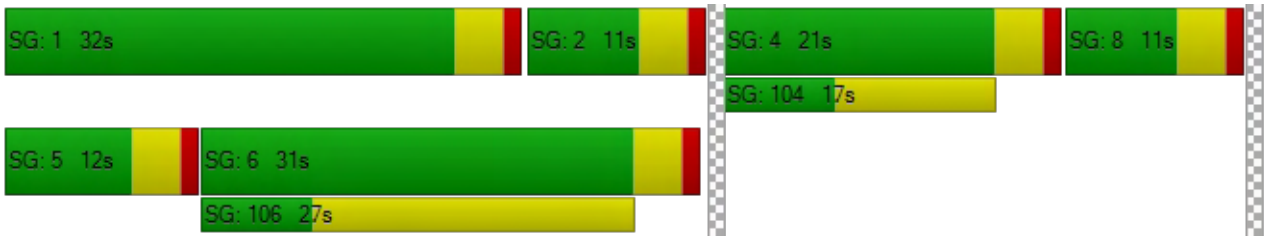
d_M, Delay for Movement [s/veh]	49.31	13.10	16.65	44.88	13.59	9.97	43.10	43.10	35.73	38.49	38.40	29.63
Movement LOS	D	B	B	D	B	A	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	20.04			17.17			38.09			37.19		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	25.39											
Intersection LOS	C											
Intersection V/C	0.718											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	32.21	32.21	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.092	2.413	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	165	635	165	400
d_b, Bicycle Delay [s]	35.79	19.79	35.79	27.20
l_b,int, Bicycle LOS Score for Intersection	3.236	2.390	2.406	2.566
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	22.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	668	1061	0	0	477	723	0	0	0	464	10	413
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	27	0	0	12	14	0	0	0	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	668	1088	0	0	489	737	0	0	0	464	10	424
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	286	0	0	129	194	0	0	0	122	3	112
Total Analysis Volume [veh/h]	703	1145	0	0	515	776	0	0	0	488	11	446
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	19	45	0	0	26	0	0	0	0	0	15	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	15	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	75	75	75		75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	56	37		11	11	11
g / C, Green / Cycle	0.20	0.75	0.49		0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.20	0.22	0.10		0.14	0.14	0.14
s, saturation flow rate [veh/h]	3514	5176	5176		3514	1627	1615
c, Capacity [veh/h]	705	3861	2548		518	240	238
d1, Uniform Delay [s]	27.50	0.05	7.06		29.85	29.91	29.95
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	15.25	0.20	0.18		9.03	17.85	18.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33		1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.30	0.20		0.94	0.95	0.96
d, Delay for Lane Group [s/veh]	42.75	0.25	7.24		38.88	47.76	48.84
Lane Group LOS	D	A	A		D	D	D
Critical Lane Group	Yes	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.66	0.08	0.91		4.59	4.89	4.95
50th-Percentile Queue Length [ft/ln]	166.58	2.07	22.86		114.81	122.23	123.76
95th-Percentile Queue Length [veh/ln]	10.90	0.15	1.65		8.11	8.52	8.60
95th-Percentile Queue Length [ft/ln]	272.42	3.73	41.15		202.67	212.89	214.98

Movement, Approach, & Intersection Results

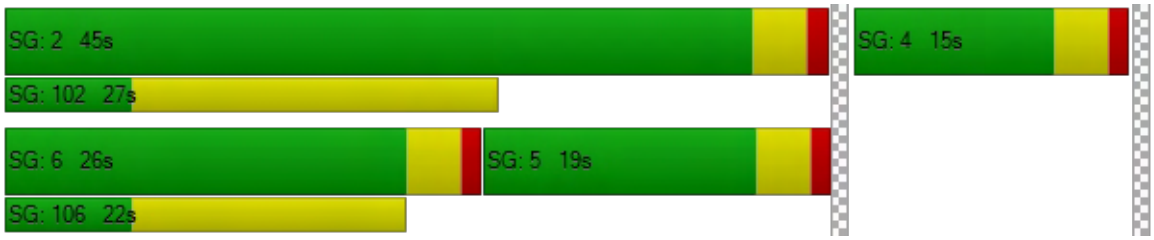
d_M, Delay for Movement [s/veh]	42.75	0.25	0.00	0.00	7.24	0.00	0.00	0.00	0.00	38.88	47.76	48.32
Movement LOS	D	A			A					D	D	D
d_A, Approach Delay [s/veh]	16.41			7.24			0.00			43.44		
Approach LOS	B			A			A			D		
d_I, Intersection Delay [s/veh]	22.71											
Intersection LOS	C											
Intersection V/C	0.479											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.053	2.351
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1093	587	0	293
d_b, Bicycle Delay [s]	7.71	18.73	37.50	27.31
l_b,int, Bicycle LOS Score for Intersection	2.576	1.843	4.132	3.119
Bicycle LOS	B	A	D	C

Sequence

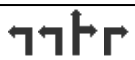
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	18.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.694

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	1260	560	367	799	0	490	4	491	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	10	2	0	23	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1264	560	377	801	0	513	4	491	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	333	147	99	211	0	135	1	129	0	0	0
Total Analysis Volume [veh/h]	0	1331	589	397	843	0	540	4	517	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	46.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	31	0	13	44	0	0	16	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	75	75	75	75	75	75	75	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	9	55	12	12	12	
g / C, Green / Cycle	0.56	0.56	0.12	0.73	0.16	0.16	0.16	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.36	0.11	0.16	0.15	0.16	0.16	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	3514	1619	1615	
c, Capacity [veh/h]	2884	900	428	3790	567	261	261	
d1, Uniform Delay [s]	5.25	6.05	31.17	0.24	29.22	29.49	29.51	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.53	3.70	9.06	0.14	9.45	25.16	25.73	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.65	0.93	0.22	0.95	1.00	1.00	
d, Delay for Lane Group [s/veh]	5.79	9.75	40.23	0.38	38.68	54.66	55.24	
Lane Group LOS	A	A	D	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	1.84	3.36	3.68	0.10	5.06	6.03	6.06	
50th-Percentile Queue Length [ft/ln]	46.08	84.02	91.88	2.42	126.57	150.65	151.61	
95th-Percentile Queue Length [veh/ln]	3.32	6.05	6.62	0.17	8.75	10.05	10.10	
95th-Percentile Queue Length [ft/ln]	82.94	151.24	165.39	4.36	218.82	251.29	252.58	

Movement, Approach, & Intersection Results

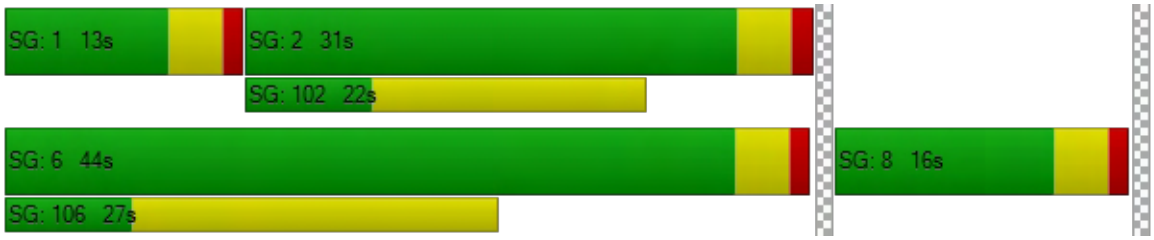
d_M, Delay for Movement [s/veh]	0.00	5.79	9.75	40.23	0.38	0.00	38.68	54.66	54.95	0.00	0.00	0.00
Movement LOS		A	A	D	A		D	D	D			
d_A, Approach Delay [s/veh]	7.00			13.14			46.67			0.00		
Approach LOS	A			B			D			A		
d_I, Intersection Delay [s/veh]	18.77											
Intersection LOS	B											
Intersection V/C	0.694											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.380	2.187
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	720	1067	320	0
d_b, Bicycle Delay [s]	15.36	8.17	26.46	37.50
l_b,int, Bicycle LOS Score for Intersection	2.616	2.242	3.310	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	32.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.871

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	91	393	204	154	346	78	112	538	78	151	341	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	0	0	0	0	8	5	10	5	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	393	204	154	346	86	117	548	83	151	360	47
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	103	54	41	91	23	31	144	22	40	95	12
Total Analysis Volume [veh/h]	104	414	215	162	364	91	123	577	87	159	379	49
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	30	0	16	31	0	18	24	0	15	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	33	9	36	36	7	17	17	9	19	19
g / C, Green / Cycle	0.08	0.39	0.11	0.42	0.42	0.09	0.21	0.21	0.11	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.06	0.35	0.09	0.19	0.06	0.07	0.18	0.18	0.09	0.11	0.12
s, saturation flow rate [veh/h]	1810	1792	1810	1900	1615	1810	1900	1814	1810	1900	1825
c, Capacity [veh/h]	138	697	199	803	682	158	389	372	196	429	412
d1, Uniform Delay [s]	37.47	19.06	35.49	12.83	11.24	36.84	29.89	29.90	35.61	25.86	25.88
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.92	17.22	7.73	1.85	0.41	7.99	6.12	6.46	7.84	0.93	0.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.90	0.81	0.45	0.13	0.78	0.87	0.87	0.81	0.51	0.51
d, Delay for Lane Group [s/veh]	45.39	36.28	43.22	14.68	11.64	44.83	36.01	36.36	43.46	26.79	26.86
Lane Group LOS	D	D	D	B	B	D	D	D	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.26	11.14	3.40	3.65	0.80	2.65	6.31	6.07	3.35	3.34	3.23
50th-Percentile Queue Length [ft/ln]	56.58	278.45	84.98	91.16	19.98	66.22	157.70	151.70	83.71	83.48	80.87
95th-Percentile Queue Length [veh/ln]	4.07	16.61	6.12	6.56	1.44	4.77	10.43	10.11	6.03	6.01	5.82
95th-Percentile Queue Length [ft/ln]	101.84	415.28	152.97	164.08	35.97	119.20	260.68	252.70	150.68	150.26	145.56

Movement, Approach, & Intersection Results

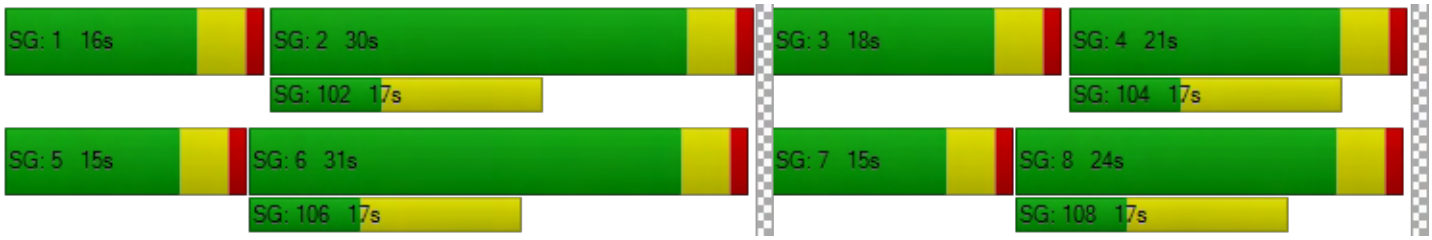
d_M, Delay for Movement [s/veh]	45.39	36.28	36.28	43.22	14.68	11.64	44.83	36.15	36.36	43.46	26.82	26.86
Movement LOS	D	D	D	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	37.57			21.72			37.53			31.33		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	32.63											
Intersection LOS	C											
Intersection V/C	0.871											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	32.21	32.21	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	2.619	2.648	2.694	2.747
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	612	635	471	400
d_b, Bicycle Delay [s]	20.48	19.79	24.85	27.20
l_b,int, Bicycle LOS Score for Intersection	2.769	2.578	2.209	2.044
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



GENERAL BUILDOUT (YEAR 2040) WITH PROJECT

WITH RECIPRICAL ACCESS

WITH IMPROVEMENTS

Westgrove Apartments

Vistro File: G:\...\AMGB_ALT2_IMPRV.vistro
Report File: G:\...\AMGBp_ALT2_IMPRV.pdf

Scenario 2 General Buildout (Year 2040) With Project
9/11/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.652	25.1	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Left	0.537	17.6	B
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Left	0.534	17.0	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.466	23.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	25.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	317	675	231	56	327	20	8	28	126	184	85	71
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	13	1	0	0	0	0	0	41	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	317	675	244	57	327	20	8	28	126	225	85	75
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	83	178	64	15	86	5	2	7	33	59	22	20
Total Analysis Volume [veh/h]	334	711	257	60	344	21	8	29	133	237	89	79
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	22	40	0	13	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	C	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18	52	52	6	40	40	7	29	14	14	14
g / C, Green / Cycle	0.19	0.55	0.55	0.06	0.42	0.42	0.07	0.30	0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.18	0.37	0.16	0.03	0.10	0.01	0.02	0.08	0.13	0.05	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1880	1615	1810	1729	1615
c, Capacity [veh/h]	343	1040	884	108	1510	674	137	492	275	263	246
d1, Uniform Delay [s]	35.31	8.41	6.52	42.57	13.31	12.41	40.63	21.22	36.97	33.84	33.75
k, delay calibration	0.15	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	20.61	3.65	0.83	4.39	0.35	0.09	1.05	0.29	7.81	0.76	0.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.97	0.68	0.29	0.56	0.23	0.03	0.27	0.27	0.86	0.34	0.32
d, Delay for Lane Group [s/veh]	55.92	12.06	7.35	46.97	13.66	12.50	41.68	21.51	44.78	34.60	34.50
Lane Group LOS	E	B	A	D	B	B	D	C	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.60	5.61	1.62	1.42	1.74	0.21	0.81	1.85	5.39	1.71	1.52
50th-Percentile Queue Length [ft/ln]	215.05	140.35	40.49	35.60	43.50	5.17	20.22	46.23	134.66	42.81	37.96
95th-Percentile Queue Length [veh/ln]	13.41	9.50	2.92	2.56	3.13	0.37	1.46	3.33	9.19	3.08	2.73
95th-Percentile Queue Length [ft/ln]	335.30	237.50	72.88	64.08	78.30	9.30	36.39	83.21	229.82	77.06	68.33

Movement, Approach, & Intersection Results

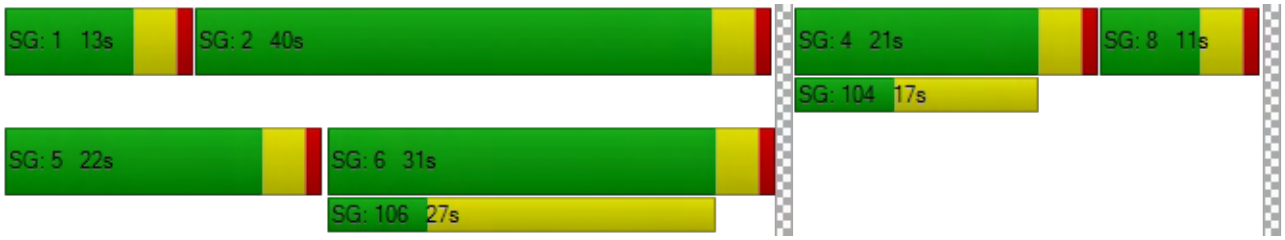
d_M, Delay for Movement [s/veh]	55.92	12.06	7.35	46.97	13.66	12.50	41.68	41.68	21.51	44.78	34.60	34.50
Movement LOS	E	B	A	D	B	B	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	22.38			18.30			25.90			40.54		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	25.08											
Intersection LOS	C											
Intersection V/C	0.652											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	37.14	37.14	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.050	2.358	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	758	568	147	358
d_b, Bicycle Delay [s]	18.32	24.34	40.76	32.02
l_b,int, Bicycle LOS Score for Intersection	3.708	1.910	1.840	1.894
Bicycle LOS	D	A	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.537

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	762	872	0	0	709	793	0	0	0	401	3	228
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	0	0	19	22	0	0	0	0	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	762	881	0	0	728	815	0	0	0	401	3	232
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	201	232	0	0	192	214	0	0	0	106	1	61
Total Analysis Volume [veh/h]	802	927	0	0	766	858	0	0	0	422	3	244
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	6	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	7	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	30	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	24	45	0	0	21	21	0	0	0	0	15	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	7	0	0	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	80	80	80		80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	20	61	37		11	11	11
g / C, Green / Cycle	0.25	0.76	0.47		0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.23	0.18	0.15		0.12	0.08	0.08
s, saturation flow rate [veh/h]	3514	5176	5176		3514	1621	1615
c, Capacity [veh/h]	869	3943	2404		486	224	223
d1, Uniform Delay [s]	26.10	0.00	9.23		31.95	30.41	30.41
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	4.70	0.14	0.35		4.88	2.11	2.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33		1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.24	0.32		0.87	0.55	0.55
d, Delay for Lane Group [s/veh]	30.80	0.14	9.58		36.83	32.52	32.53
Lane Group LOS	C	A	A		D	C	C
Critical Lane Group	Yes	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh/ln]	6.47	0.05	1.77		4.00	2.19	2.18
50th-Percentile Queue Length [ft/ln]	161.84	1.28	44.13		99.98	54.68	54.52
95th-Percentile Queue Length [veh/ln]	10.65	0.09	3.18		7.20	3.94	3.93
95th-Percentile Queue Length [ft/ln]	266.15	2.30	79.44		179.97	98.42	98.13

Movement, Approach, & Intersection Results

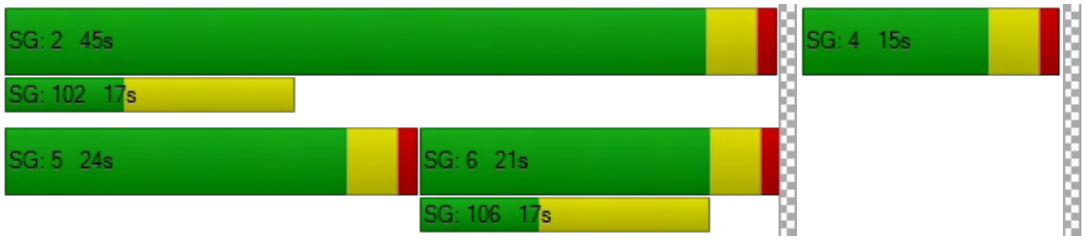
d_M, Delay for Movement [s/veh]	30.80	0.14	0.00	0.00	9.58	0.00	0.00	0.00	0.00	36.83	32.52	32.53
Movement LOS	C	A			A					D	C	C
d_A, Approach Delay [s/veh]	14.36			9.58			0.00			35.24		
Approach LOS	B			A			A			D		
d_I, Intersection Delay [s/veh]	17.62											
Intersection LOS	B											
Intersection V/C	0.537											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.101	2.288
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1025	425	0	275
d_b, Bicycle Delay [s]	9.51	24.81	40.00	29.76
l_b,int, Bicycle LOS Score for Intersection	2.511	1.981	4.132	2.663
Bicycle LOS	B	A	D	B

Sequence

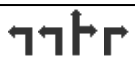
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.534

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No			No				
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	985	371	111	798	0	715	3	554	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	15	4	0	8	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	986	371	126	802	0	723	3	554	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	259	98	33	211	0	190	1	146	0	0	0
Total Analysis Volume [veh/h]	0	1038	391	133	844	0	761	3	583	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	41.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	26	0	11	37	0	0	23	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	85	85	85	85	85	85	85	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	47	47	7	58	19	19	19	
g / C, Green / Cycle	0.56	0.56	0.08	0.68	0.22	0.22	0.22	
(v / s)_i Volume / Saturation Flow Rate	0.20	0.24	0.04	0.16	0.22	0.18	0.18	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	3514	1617	1615	
c, Capacity [veh/h]	2874	897	281	3530	787	362	362	
d1, Uniform Delay [s]	5.70	5.94	36.32	1.30	29.53	28.16	28.17	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.35	1.54	1.24	0.16	9.06	4.34	4.37	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.36	0.44	0.47	0.24	0.97	0.81	0.81	
d, Delay for Lane Group [s/veh]	6.05	7.48	37.57	1.46	38.59	32.49	32.54	
Lane Group LOS	A	A	D	A	D	C	C	
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	1.68	2.22	1.27	0.38	7.80	5.35	5.36	
50th-Percentile Queue Length [ft/ln]	41.89	55.55	31.69	9.57	195.01	133.84	133.98	
95th-Percentile Queue Length [veh/ln]	3.02	4.00	2.28	0.69	12.38	9.15	9.16	
95th-Percentile Queue Length [ft/ln]	75.40	99.98	57.04	17.23	309.52	228.71	228.90	

Movement, Approach, & Intersection Results

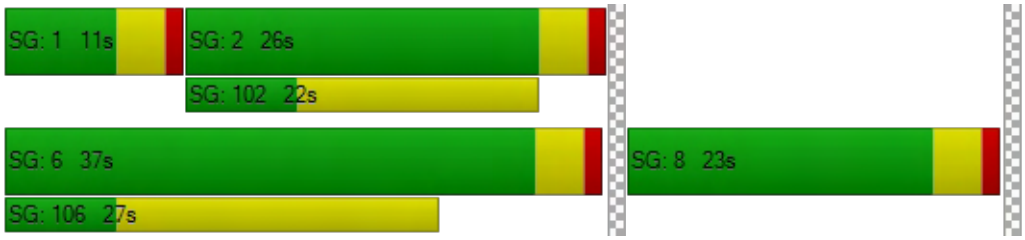
d_M, Delay for Movement [s/veh]	0.00	6.05	7.48	37.57	1.46	0.00	38.59	32.49	32.52	0.00	0.00	0.00
Movement LOS		A	A	D	A		D	C	C			
d_A, Approach Delay [s/veh]	6.44			6.37			35.95			0.00		
Approach LOS	A			A			D			A		
d_I, Intersection Delay [s/veh]	17.02											
Intersection LOS	B											
Intersection V/C	0.534											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	32.21	32.21
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.456	1.968
Crosswalk LOS	F	F	B	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	518	776	447	0
d_b, Bicycle Delay [s]	23.35	15.91	25.62	42.50
l_b,int, Bicycle LOS Score for Intersection	2.346	2.097	3.782	4.132
Bicycle LOS	B	B	D	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	23.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	62	198	68	88	236	82	78	151	34	145	307	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	0	8	1	2	15	0	0	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	201	68	88	244	83	80	166	34	145	314	55
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	53	18	23	64	22	21	44	9	38	83	14
Total Analysis Volume [veh/h]	65	212	72	93	257	87	84	175	36	153	331	58
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	21	0	11	21	0	14	21	0	17	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	5	33	6	33	33	6	8	8	8	10	10
g / C, Green / Cycle	0.07	0.47	0.08	0.48	0.48	0.08	0.11	0.11	0.11	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.05	0.14	0.05	0.05	0.06	0.06	0.08	0.10	0.11
s, saturation flow rate [veh/h]	1810	1819	1810	1900	1615	1810	1900	1790	1810	1900	1803
c, Capacity [veh/h]	133	843	154	903	768	149	218	205	196	268	254
d1, Uniform Delay [s]	30.42	8.20	30.00	7.52	7.02	30.08	27.88	27.93	29.24	27.33	27.36
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.74	1.08	3.74	0.79	0.30	3.33	1.71	1.92	6.56	4.04	4.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.34	0.60	0.28	0.11	0.56	0.49	0.51	0.78	0.74	0.75
d, Delay for Lane Group [s/veh]	33.16	9.28	33.74	8.32	7.32	33.41	29.60	29.85	35.80	31.36	31.77
Lane Group LOS	C	A	C	A	A	C	C	C	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.05	1.80	1.51	1.50	0.48	1.36	1.59	1.55	2.57	3.05	2.95
50th-Percentile Queue Length [ft/ln]	26.31	45.09	37.85	37.58	11.99	34.02	39.70	38.77	64.17	76.21	73.70
95th-Percentile Queue Length [veh/ln]	1.89	3.25	2.72	2.71	0.86	2.45	2.86	2.79	4.62	5.49	5.31
95th-Percentile Queue Length [ft/ln]	47.36	81.15	68.12	67.65	21.58	61.23	71.45	69.79	115.51	137.17	132.67

Movement, Approach, & Intersection Results

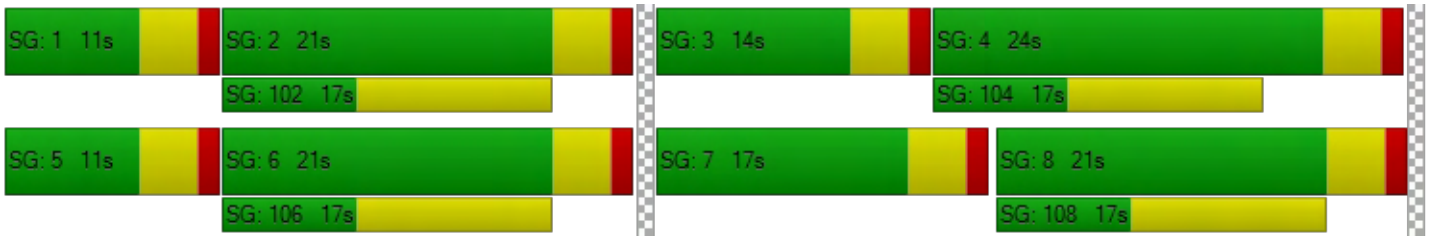
d_M, Delay for Movement [s/veh]	33.16	9.28	9.28	33.74	8.32	7.32	33.41	29.70	29.85	35.80	31.53	31.77
Movement LOS	C	A	A	C	A	A	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.72			13.53			30.77			32.76		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	23.13											
Intersection LOS	C											
Intersection V/C	0.466											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersection	2.408	2.517	2.514	2.544
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	486	571
d_b, Bicycle Delay [s]	20.06	20.06	20.06	17.86
l_b,int, Bicycle LOS Score for Intersection	2.135	2.281	1.803	2.007
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Westgrove Apartments

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Report File: G:\...\PMGBp_ALT2_IMPRV.pdf

Scenario 2 General Buildout (Year 2040) With Project
9/12/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	California Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	NB Left	0.702	27.3	C
2	California Street (NS) at I-10 WB Ramps (EW)	Signalized	HCM 6th Edition	WB Right	0.479	23.1	C
3	California Street (NS) at I-10 EB Ramps (EW)	Signalized	HCM 6th Edition	EB Right	0.699	18.8	B
7	Nevada Street (NS) at Lugonia Avenue (EW)	Signalized	HCM 6th Edition	WB Left	0.863	33.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: California Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	27.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	1
Pocket Length [ft]	225.00	100.00	100.00	245.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	290.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	California Street			California Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	142	382	404	108	821	24	18	138	332	381	89	82
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	38	4	0	0	0	0	0	26	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	142	382	442	112	821	24	18	138	332	407	89	84
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	101	116	29	216	6	5	36	87	107	23	22
Total Analysis Volume [veh/h]	149	402	465	118	864	25	19	145	349	428	94	88
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Split	Split	Overlap	Split	Split	Split
Signal group	5	2	0	1	6	0	0	8	8	0	4	0
Auxiliary Signal Groups									5,8			
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	0.0
Split [s]	12	11	0	32	31	0	0	11	11	0	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	0	0	20	0	0	30	30	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No		No	
Maximum Recall	No	No		No	No			No	No		No	
Pedestrian Recall	No	No		No	No			No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	43	43	8	42	42	9	21	15	15	15
g / C, Green / Cycle	0.09	0.47	0.47	0.08	0.47	0.47	0.10	0.23	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.08	0.21	0.29	0.07	0.24	0.02	0.09	0.22	0.14	0.14	0.05
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1889	1615	1810	1841	1615
c, Capacity [veh/h]	161	901	766	151	1695	757	187	375	300	305	268
d1, Uniform Delay [s]	39.37	10.51	11.56	39.19	11.19	9.07	38.56	30.36	34.09	34.09	30.87
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.19	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	18.94	1.60	3.57	8.35	1.10	0.08	12.27	16.22	7.32	7.16	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.92	0.45	0.61	0.78	0.51	0.03	0.88	0.93	0.86	0.86	0.33
d, Delay for Lane Group [s/veh]	58.31	12.11	15.13	47.53	12.29	9.16	50.83	46.58	41.41	41.25	31.58
Lane Group LOS	E	B	B	D	B	A	D	D	D	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.86	3.58	4.68	2.71	3.84	0.19	3.90	7.77	5.44	5.51	1.55
50th-Percentile Queue Length [ft/ln]	96.44	89.42	116.96	67.87	95.96	4.78	97.54	194.13	135.94	137.81	38.77
95th-Percentile Queue Length [veh/ln]	6.94	6.44	8.23	4.89	6.91	0.34	7.02	12.34	9.26	9.36	2.79
95th-Percentile Queue Length [ft/ln]	173.60	160.95	205.64	122.17	172.73	8.60	175.57	308.38	231.55	234.07	69.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	58.31	12.11	15.13	47.53	12.29	9.16	50.83	50.83	46.58	41.35	41.25	31.58
Movement LOS	E	B	B	D	B	A	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	20.27			16.34			47.94			39.92		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	27.34											
Intersection LOS	C											
Intersection V/C	0.702											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	11.0	11.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	34.67	34.67	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	3.095	2.416	0.000
Crosswalk LOS	F	C	B	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	600	156	378
d_b, Bicycle Delay [s]	38.27	22.05	38.27	29.61
l_b,int, Bicycle LOS Score for Intersection	3.236	2.390	2.406	2.566
Bicycle LOS	C	B	B	B

Sequence

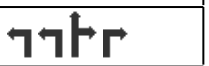
Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: California Street (NS) at I-10 WB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	23.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]		45.00			45.00			30.00			30.00	
Grade [%]		0.00			0.00			0.00			0.00	
Curb Present		No			No						No	
Crosswalk		No			No			Yes			Yes	

Volumes

Name	California Street			California Street			I-10 WB Ramps			I-10 WB Ramps		
Base Volume Input [veh/h]	668	1061	0	0	477	723	0	0	0	472	10	413
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	27	0	0	12	14	0	0	0	0	0	11
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	668	1088	0	0	489	737	0	0	0	472	10	424
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	176	286	0	0	129	194	0	0	0	124	3	112
Total Analysis Volume [veh/h]	703	1145	0	0	515	776	0	0	0	497	11	446
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing		0			0			0			0	
v_di, Inbound Pedestrian Volume crossing m		0			0			0			0	
v_co, Outbound Pedestrian Volume crossing		0			0			0			0	
v_ci, Inbound Pedestrian Volume crossing mi		0			0			0			0	
v_ab, Corner Pedestrian Volume [ped/h]		0			0			0			0	
Bicycle Volume [bicycles/h]		0			0			0			0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Unsigna	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	5	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lag	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	0	0	0	7	0
Maximum Green [s]	30	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	19	45	0	0	26	0	0	0	0	0	15	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	0	0	0	7	0
Pedestrian Clearance [s]	0	20	0	0	15	0	0	0	0	0	0	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall	No	No			No						No	
Maximum Recall	No	No			No						No	
Pedestrian Recall	No	No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C		L	C	R
C, Cycle Length [s]	75	75	75		75	75	75
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	15	56	37		11	11	11
g / C, Green / Cycle	0.20	0.75	0.49		0.15	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.20	0.22	0.10		0.14	0.14	0.14
s, saturation flow rate [veh/h]	3514	5176	5176		3514	1627	1615
c, Capacity [veh/h]	705	3861	2548		518	240	238
d1, Uniform Delay [s]	27.50	0.05	7.06		29.95	29.91	29.95
k, delay calibration	0.11	0.50	0.50		0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	15.25	0.20	0.18		11.02	17.83	18.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33		1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.00	0.30	0.20		0.96	0.95	0.96
d, Delay for Lane Group [s/veh]	42.75	0.25	7.24		40.97	47.74	48.87
Lane Group LOS	D	A	A		D	D	D
Critical Lane Group	Yes	No	Yes		No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.66	0.08	0.91		4.82	4.89	4.95
50th-Percentile Queue Length [ft/ln]	166.58	2.07	22.86		120.48	122.18	123.81
95th-Percentile Queue Length [veh/ln]	10.90	0.15	1.65		8.42	8.51	8.60
95th-Percentile Queue Length [ft/ln]	272.42	3.73	41.15		210.49	212.82	215.05

Movement, Approach, & Intersection Results

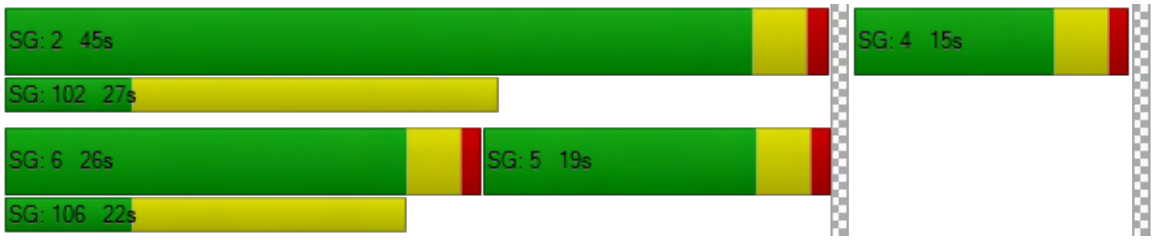
d_M, Delay for Movement [s/veh]	42.75	0.25	0.00	0.00	7.24	0.00	0.00	0.00	0.00	40.97	47.74	48.32
Movement LOS	D	A			A					D	D	D
d_A, Approach Delay [s/veh]	16.41			7.24			0.00			44.48		
Approach LOS	B			A			A			D		
d_I, Intersection Delay [s/veh]	23.06											
Intersection LOS	C											
Intersection V/C	0.479											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.053	2.354
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1093	587	0	293
d_b, Bicycle Delay [s]	7.71	18.73	37.50	27.31
l_b,int, Bicycle LOS Score for Intersection	2.576	1.843	4.132	3.134
Bicycle LOS	B	A	D	C

Sequence

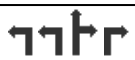
Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: California Street (NS) at I-10 EB Ramps (EW)

Control Type:	Signalized	Delay (sec / veh):	18.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.699

Intersection Setup

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	No			No			Yes			Yes		

Volumes

Name	California Street			California Street			I-10 EB Ramps			I-10 EB Ramps		
Base Volume Input [veh/h]	0	1260	566	367	799	0	490	4	491	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	4	0	10	2	0	23	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1264	566	377	801	0	513	4	491	0	0	0
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	333	149	99	211	0	135	1	129	0	0	0
Total Analysis Volume [veh/h]	0	1331	596	397	843	0	540	4	517	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	1 - Coordination Fwy Ramps
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	46.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	7	0	7	7	0	0	7	0	0	0	0
Maximum Green [s]	0	30	0	30	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	31	0	13	44	0	0	16	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	0	0
Pedestrian Clearance [s]	0	15	0	0	20	0	0	0	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No		No	No			No				
Maximum Recall		No		No	No			No				
Pedestrian Recall		No		No	No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	C	R	
C, Cycle Length [s]	75	75	75	75	75	75	75	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	42	42	9	55	12	12	12	
g / C, Green / Cycle	0.56	0.56	0.12	0.73	0.16	0.16	0.16	
(v / s)_i Volume / Saturation Flow Rate	0.26	0.37	0.11	0.16	0.15	0.16	0.16	
s, saturation flow rate [veh/h]	5176	1615	3514	5176	3514	1619	1615	
c, Capacity [veh/h]	2884	900	428	3790	567	261	261	
d1, Uniform Delay [s]	5.25	6.09	31.17	0.24	29.22	29.49	29.51	
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.53	3.83	9.06	0.14	9.45	25.16	25.73	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.46	0.66	0.93	0.22	0.95	1.00	1.00	
d, Delay for Lane Group [s/veh]	5.79	9.91	40.23	0.38	38.68	54.66	55.24	
Lane Group LOS	A	A	D	A	D	D	E	
Critical Lane Group	No	Yes	Yes	No	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	1.84	3.43	3.68	0.10	5.06	6.03	6.06	
50th-Percentile Queue Length [ft/ln]	46.08	85.73	91.88	2.42	126.57	150.65	151.61	
95th-Percentile Queue Length [veh/ln]	3.32	6.17	6.62	0.17	8.75	10.05	10.10	
95th-Percentile Queue Length [ft/ln]	82.94	154.31	165.39	4.36	218.82	251.29	252.58	

Movement, Approach, & Intersection Results

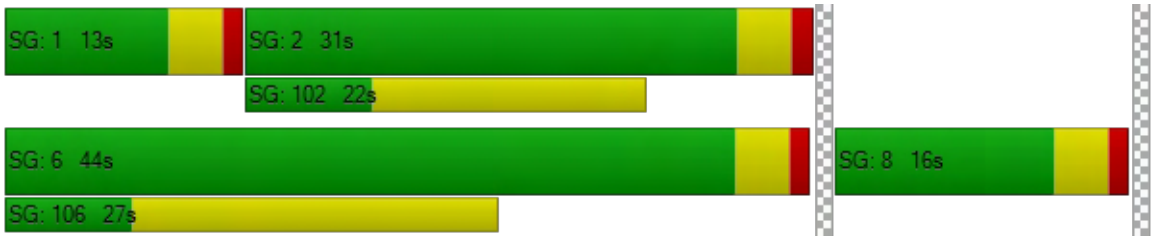
d_M, Delay for Movement [s/veh]	0.00	5.79	9.91	40.23	0.38	0.00	38.68	54.66	54.95	0.00	0.00	0.00
Movement LOS		A	A	D	A		D	D	D			
d_A, Approach Delay [s/veh]	7.06			13.14			46.67			0.00		
Approach LOS	A			B			D			A		
d_I, Intersection Delay [s/veh]	18.78											
Intersection LOS	B											
Intersection V/C	0.699											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	27.31	27.31
l_p,int, Pedestrian LOS Score for Intersection	0.000	0.000	2.380	2.191
Crosswalk LOS	F	F	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	720	1067	320	0
d_b, Bicycle Delay [s]	15.36	8.17	26.46	37.50
l_b,int, Bicycle LOS Score for Intersection	2.619	2.242	3.310	4.132
Bicycle LOS	B	B	C	D

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Nevada Street (NS) at Lugonia Avenue (EW)

Control Type:	Signalized	Delay (sec / veh):	33.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.863

Intersection Setup

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Nevada Street			Nevada Street			Lugonia Avenue			Lugonia Avenue		
Base Volume Input [veh/h]	91	393	204	154	346	78	112	538	78	151	341	88
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	0	0	5	2	2	10	0	0	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	401	204	154	351	80	114	548	78	151	360	88
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	106	54	41	92	21	30	144	21	40	95	23
Total Analysis Volume [veh/h]	96	422	215	162	369	84	120	577	82	159	379	93
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	37	0	14	38	0	18	26	0	13	21	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	37	10	40	40	8	18	18	9	20	20
g / C, Green / Cycle	0.07	0.41	0.11	0.45	0.45	0.08	0.20	0.20	0.10	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.36	0.09	0.19	0.05	0.07	0.18	0.18	0.09	0.13	0.13
s, saturation flow rate [veh/h]	1810	1793	1810	1900	1615	1810	1900	1818	1810	1900	1773
c, Capacity [veh/h]	130	739	196	853	725	153	382	366	182	412	385
d1, Uniform Delay [s]	39.95	18.11	37.73	11.88	10.38	39.18	31.96	31.97	38.47	28.60	28.64
k, delay calibration	0.11	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.92	12.62	8.42	1.60	0.33	8.38	6.67	7.02	12.07	1.35	1.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.86	0.82	0.43	0.12	0.78	0.88	0.88	0.87	0.59	0.59
d, Delay for Lane Group [s/veh]	47.87	30.73	46.15	13.48	10.71	47.56	38.63	38.99	50.53	29.95	30.11
Lane Group LOS	D	C	D	B	B	D	D	D	D	C	C
Critical Lane Group	No	Yes	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.23	10.46	3.65	3.57	0.71	2.76	6.75	6.51	3.78	4.15	3.92
50th-Percentile Queue Length [ft/ln]	55.67	261.48	91.24	89.34	17.86	69.07	168.72	162.66	94.49	103.84	98.10
95th-Percentile Queue Length [veh/ln]	4.01	15.76	6.57	6.43	1.29	4.97	11.01	10.69	6.80	7.48	7.06
95th-Percentile Queue Length [ft/ln]	100.21	394.07	164.22	160.81	32.15	124.32	275.23	267.24	170.08	186.91	176.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.87	30.73	30.73	46.15	13.48	10.71	47.56	38.78	38.99	50.53	30.01	30.11
Movement LOS	D	C	C	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	32.98			21.71			40.15			35.19		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	33.00											
Intersection LOS	C											
Intersection V/C	0.863											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersection	2.622	2.665	2.691	2.763
Crosswalk LOS	B	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	733	756	489	378
d_b, Bicycle Delay [s]	18.05	17.42	25.69	29.61
l_b,int, Bicycle LOS Score for Intersection	2.769	2.574	2.202	2.080
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX G

TRAFFIC SIGNAL WARRANT WORKSHEETS

PEAK HOUR VOLUME WARRANT
(Rural Areas)

Existing

Major Street Name = **Nevada Street**

Total of Both Approaches (VPH) = **761**

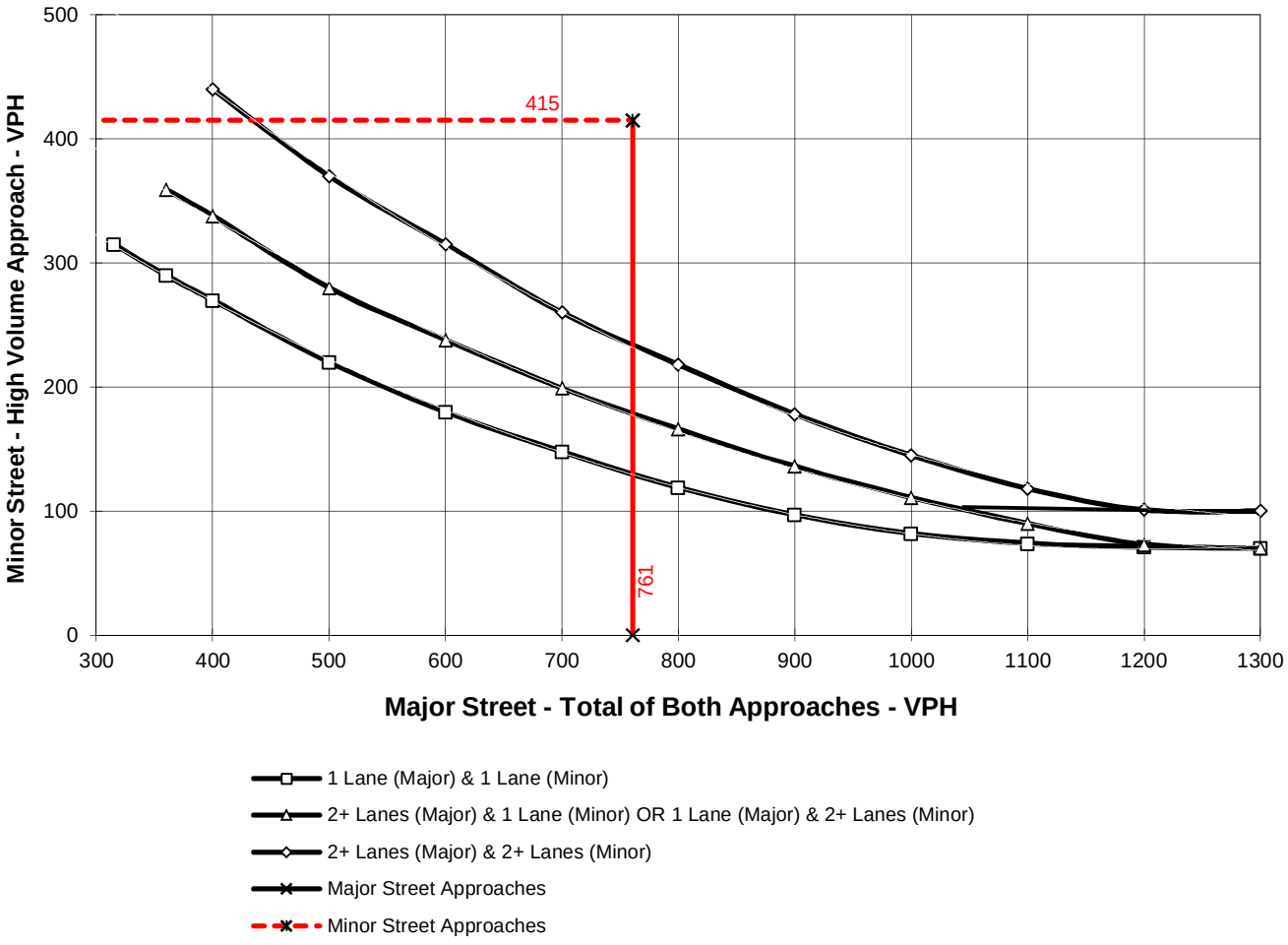
Number of Approach Lanes Major Street = **1**

Minor Street Name = **Lugonia Avenue**

High Volume Approach (VPH) = **415**

Number of Approach Lanes Minor Street = **2**

WARRANTED FOR A SIGNAL



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

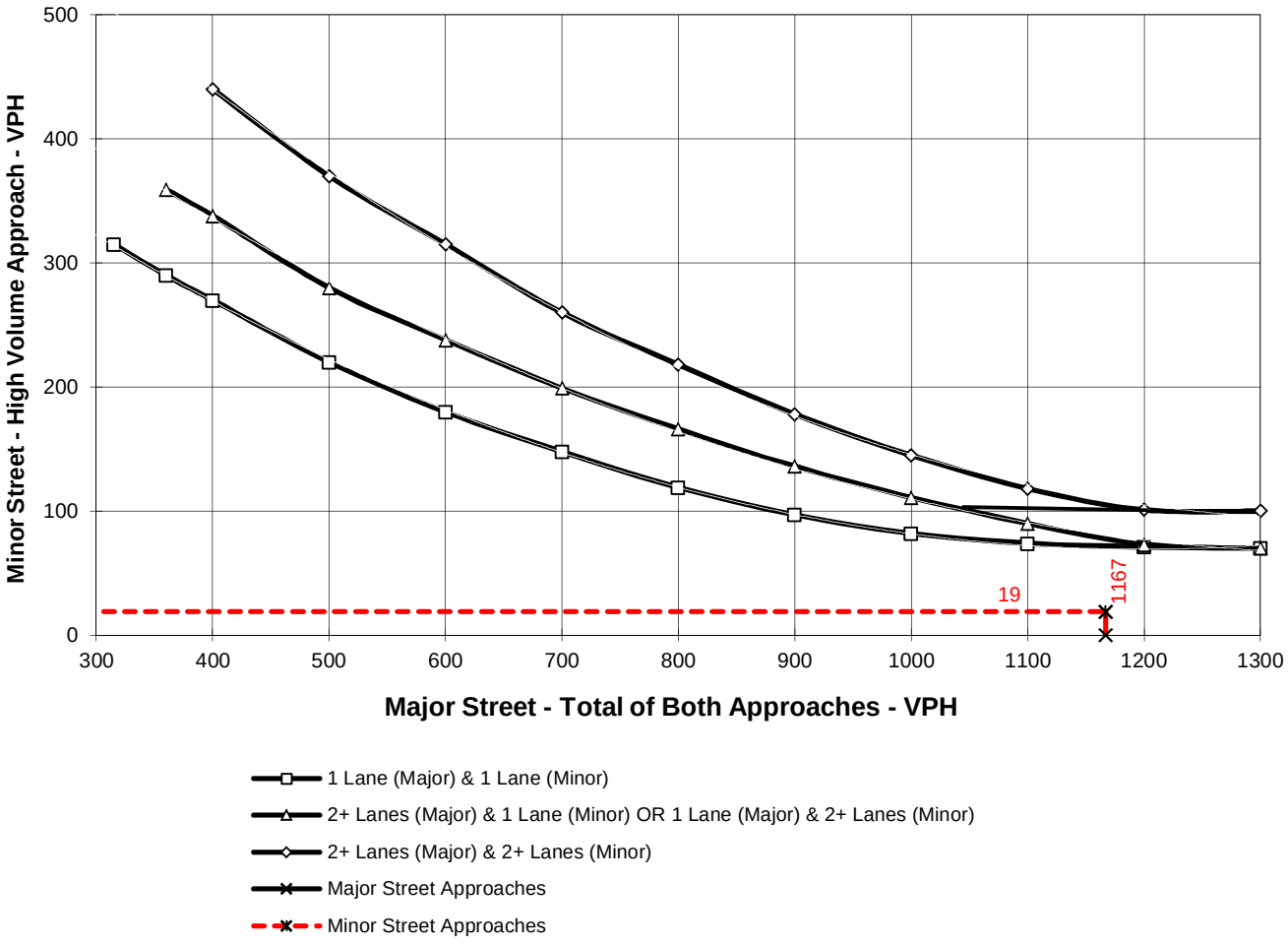
PEAK HOUR VOLUME WARRANT
(Rural Areas)

General Plan Buildout With Project

Major Street Name = **Lugonia Avenue**
Total of Both Approaches (VPH) = **1167**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Project West DWY**
High Volume Approach (VPH) = **19**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

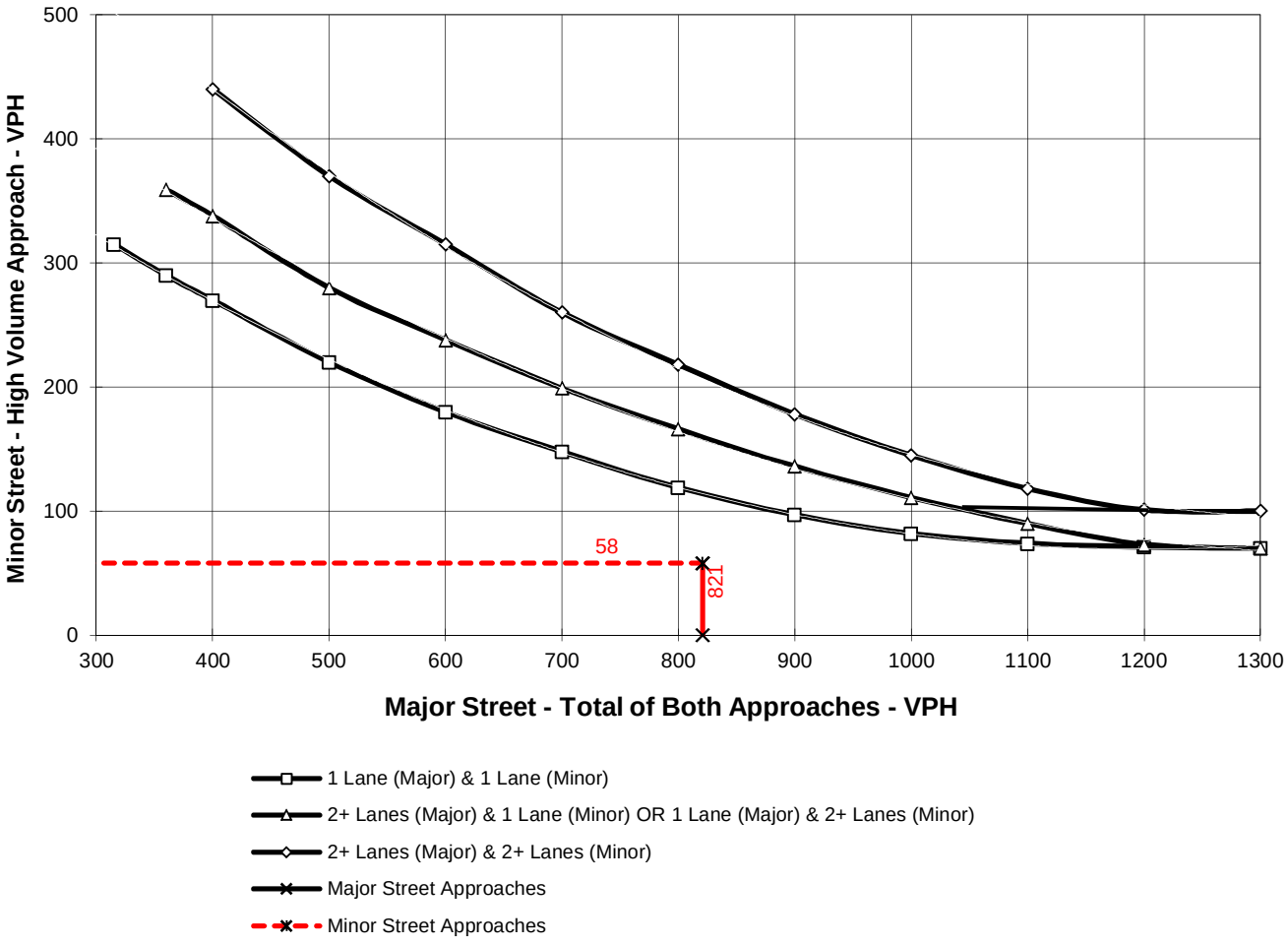
PEAK HOUR VOLUME WARRANT
(Rural Areas)

General Plan Buildout With Project

Major Street Name = **Lugonia Avenue** Total of Both Approaches (VPH) = **821**
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Project East DWY (Main)** High Volume Approach (VPH) = **58**
Number of Approach Lanes Minor Street = **2**

SIGNAL WARRANT NOT SATISFIED



** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

General Plan Buildout With Project

Major Street Name = **Nevada Street**

Total of Both Approaches (VPH) = **1275**

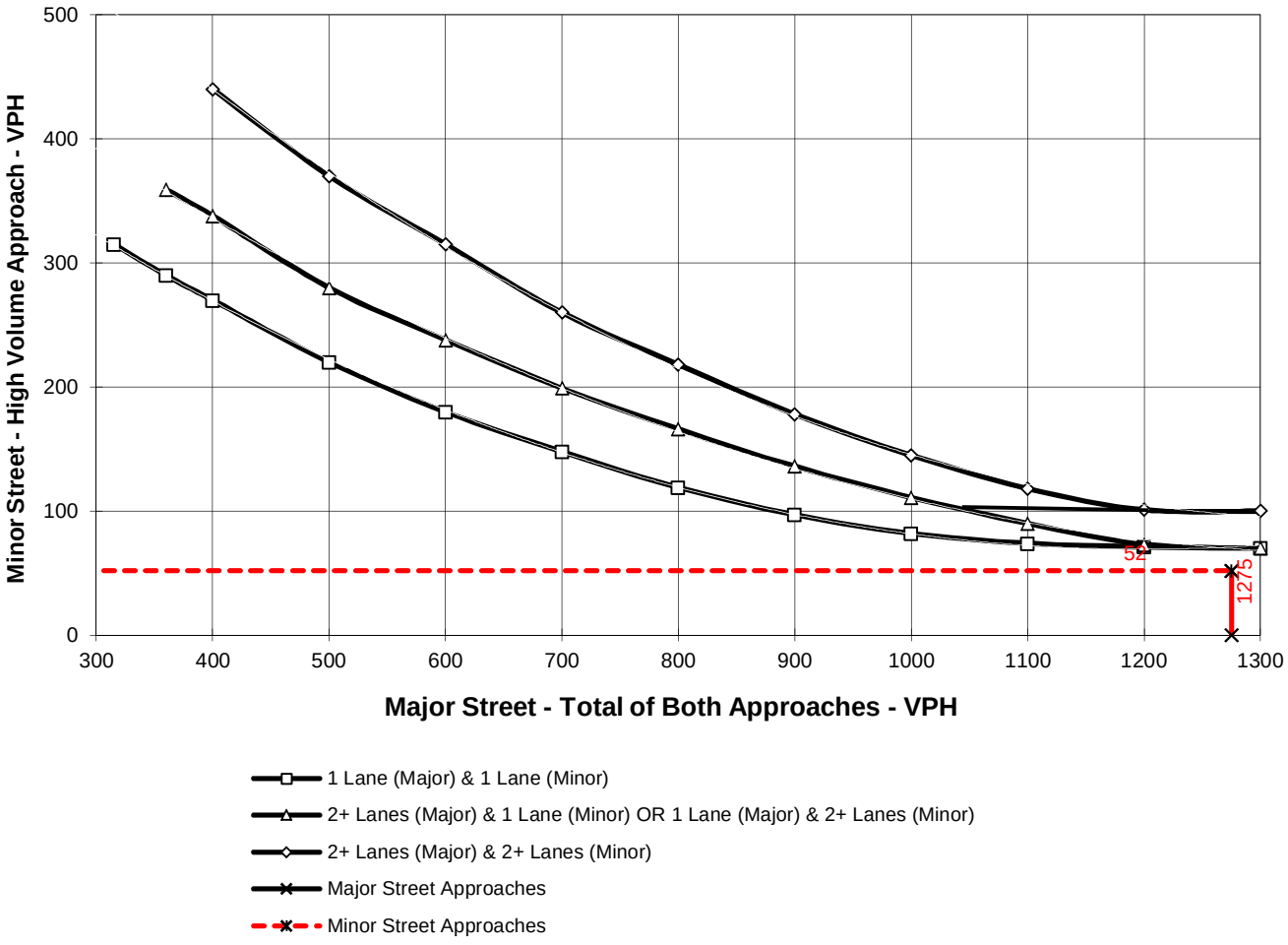
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Project North DWY**

High Volume Approach (VPH) = **52**

Number of Approach Lanes Minor Street = **1**

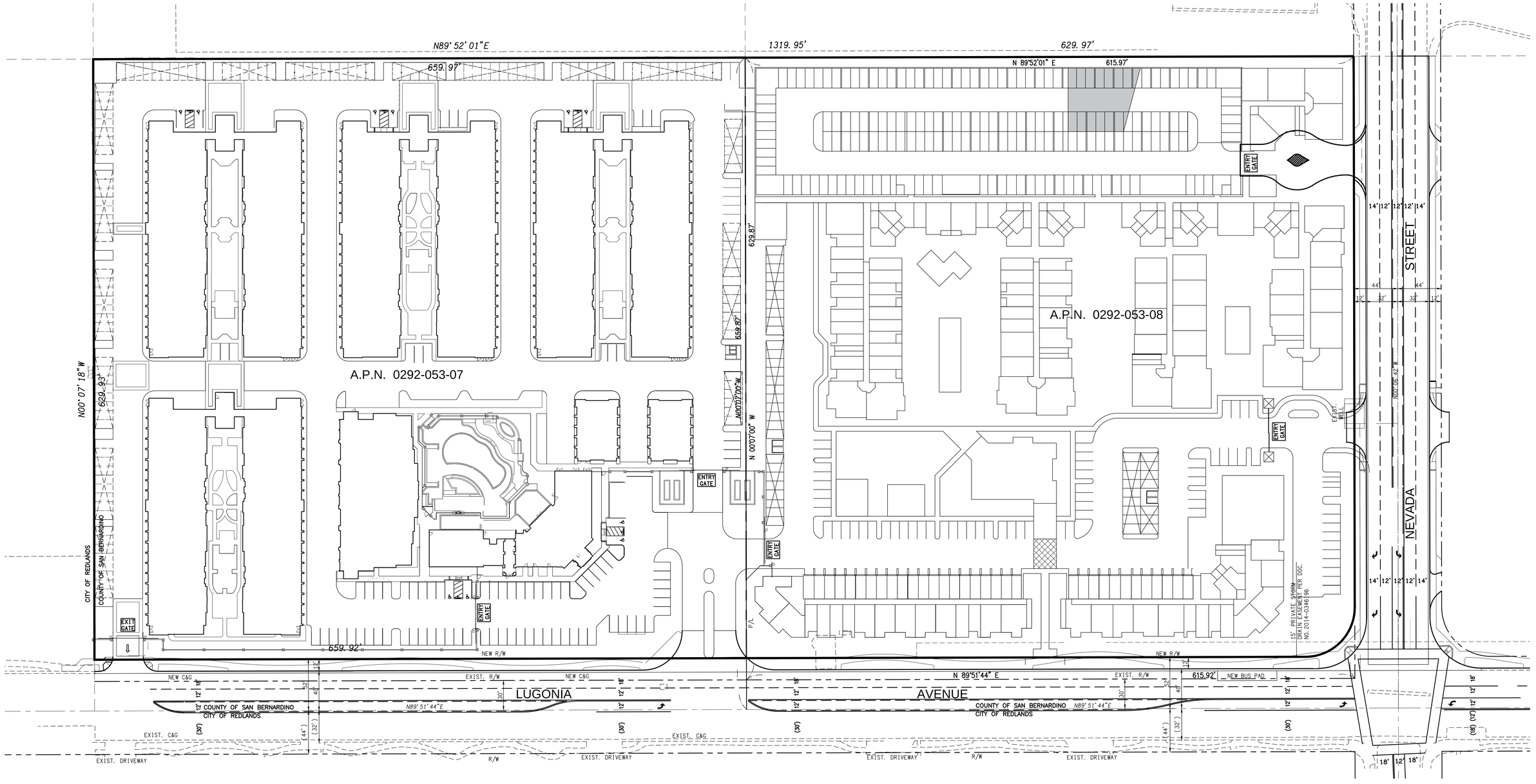
SIGNAL WARRANT NOT SATISFIED

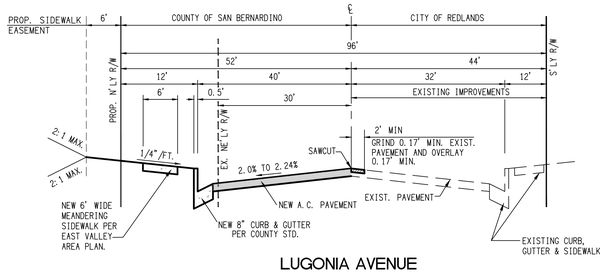


** NOTE:
100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

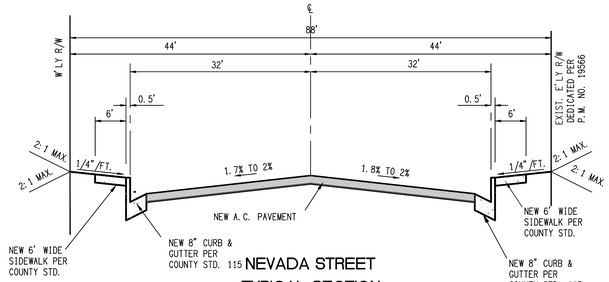
APPENDIX H

LUGONIA AVENUE SIGNING AND STRIPING PLANS

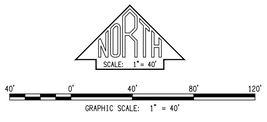




LUGONIA AVENUE
TYPICAL SECTION
NOT TO SCALE



NEVADA STREET
TYPICAL SECTION
NOT TO SCALE



PRELIMINARY
NOT FOR CONSTRUCTION
SUBJECT TO PLAN CHECK AND REVISIONS
AUG. 27, 2019

PRELIMINARY – FOR REVIEW PURPOSES ONLY

Underground Service Alert
Call: TOLL FREE 811
TWO WORKING DAYS BEFORE YOU DIG

BENCHMARK
CITY OF REDLANDS BENCHMARK NO. R29 BEING A BRASS DISK LOCATED IN THE TOP OF CURB AT THE SOUTHWEST CORNER OF NEVADA STREET AND LUGONIA AVENUE IN THE WEST END OF THE RETURN.
ELEVATION 1192.663 FT

BASIS OF BEARING
THE BEARING SHOWN HEREON ARE BASED ON THE CENTERLINE OF ALMOND AVENUE BEING :
N 89°51'18" E

PREPARED BY:
TRANSTECH
413 MACKAY DRIVE.
SAN BERNARDINO, CA. 92408
(909) 384-7464
DAVID B. RAGLAND
RCE 35985 EXP. DATE 06/30/20
DATE:

REGISTERED PROFESSIONAL ENGINEER
DAVID B. RAGLAND
REG. NO. 35985
EXP. 6-30-20
CIVIL
STATE OF CALIFORNIA

CITY OF REDLANDS
DEPARTMENT OF PUBLIC WORKS
ACCEPTED:
DON YOUNG; ENGINEERING MANAGER
ACCEPTED:
FRED MOUSAVIPOUR P.E., M.U.E.D.

MARK	REVISIONS	APPR	DATE

COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS

MOHAMMAD SIDDIQUI ENGINEER, TRAFFIC DIVISION — DATE
MOHAMMAD QURESHI TRAFFIC DIVISION CHIEF — DATE

RECOMMENDED BY:
APPROVED BY:
SAMEH BASTA LAND DEVELOPMENT MANAGER — DATE

SITE PLAN

REDLANDS–STANDARD
LUGONIA AVENUE
A.P.N. 0292–053–07
A.P.N 0292–053–08

C-1

16634 Redlands–Standard site plan 08–27–2019.dwg

APPENDIX I

HIGHWAY DESIGN MANUAL SIGHT DISTANCE STANDARDS

CHAPTER 200
GEOMETRIC DESIGN AND STRUCTURE STANDARDS

Topic 201 - Sight Distance

Index 201.1 - General

Sight distance is the continuous length of highway ahead, visible to the highway user. Four types of sight distance are considered herein: passing, stopping, decision, and corner. Passing sight distance is used where use of an opposing lane can provide passing opportunities (see Index 201.2). Stopping sight distance is the minimum sight distance for a given design speed to be provided on multilane highways and on 2-lane roads when passing sight distance is not economically obtainable. Stopping sight distance also is to be provided for all users, including motorists and bicyclists, at all elements of interchanges and intersections at grade, including private road connections (see Topic 504, Index 405.1, & Figure 405.7). Decision sight distance is used at major decision points (see Indexes 201.7 and 504.2). Corner sight distance is used at intersections (see Index 405.1, Figure 405.7, and Figure 504.3I).

Table 201.1 shows the minimum standards for stopping sight distance related to design speed for motorists. Stopping sight distances given in the table are suitable for Class II and Class III bikeways. The stopping sight distances are also applicable to roundabout design on the approach roadway, within the circulatory roadway, and on the exits prior to the pedestrian crossings. Also shown in Table 201.1 are the values for use in providing passing sight distance.

See Chapter 1000 for Class I bikeway sight distance guidance.

Chapter 3 of "A Policy on Geometric Design of Highways and Streets," AASHTO, contains a thorough discussion of the derivation of stopping sight distance.

201.2 Passing Sight Distance

Passing sight distance is the minimum sight distance required for the driver of one vehicle to pass another vehicle safely and comfortably. Passing must be accomplished assuming an oncoming vehicle comes into view and maintains the design speed, without reduction, after the overtaking maneuver is started.

Table 201.1
Sight Distance Standards

Design Speed[1] (mph)	Stopping[2] (ft)	Passing (ft)
10	50	---
15	100	---
20	125	800
25	150	950
30	200	1,100
35	250	1,300
40	300	1,500
45	360	1,650
50	430	1,800
55	500	1,950
60	580	2,100
65	660	2,300
70	750	2,500
75	840	2,600
80	930	2,700

(1) See Topic 101 for selection of design speed.
(2) For sustained downgrades, refer to underlined standard in Index 201.3

The sight distance available for passing at any place is the longest distance at which a driver whose eyes are 3 ½ feet above the pavement surface can see the top of an object 4 ¼ feet high on the road. See Table 201.1 for the calculated values that are associated with various design speeds.

In general, 2-lane highways should be designed to provide for passing where possible, especially those routes with high volumes of trucks or recreational vehicles. Passing should be done on tangent horizontal alignments with constant grades or a slight sag vertical curve. Not only are drivers reluctant to pass on a long crest vertical curve, but it is impracticable to design crest vertical curves to provide for passing sight distance because of high cost where crest cuts are involved. Passing sight

distance for crest vertical curves is 7 to 17 times longer than the stopping sight distance.

Ordinarily, passing sight distance is provided at locations where combinations of alignment and profile do not require the use of crest vertical curves.

Passing sight distance is considered only on 2-lane roads. At critical locations, a stretch of 3- or 4-lane passing section with stopping sight distance is sometimes more economical than two lanes with passing sight distance.

Passing on sag vertical curves can be accomplished both day and night because headlights can be seen through the entire curve.

See Part 3 of the California Manual on Uniform Traffic Control Devices (California MUTCD) for criteria relating to the placement of barrier striping for no-passing zones. Note, that the passing sight distances shown in the California MUTCD are based on traffic operational criteria. Traffic operational criteria are different from the design characteristics used to develop the values provided in Table 201.1 and Chapter 3 of AASHTO, A Policy on Geometric Design of Highways and Streets. The aforementioned table and AASHTO reference are also used to design the vertical profile and horizontal alignment of the highway. Consult the District Traffic Engineer or designee when using the California MUTCD criteria for traffic operating-control needs.

Other means for providing passing opportunities, such as climbing lanes or turnouts, are discussed in Index 204.5. Chapter 3 of AASHTO, A Policy on Geometric Design of Highways and Streets, contains a thorough discussion of the derivation of passing sight distance.

201.3 Stopping Sight Distance

The minimum stopping sight distance is the distance required by the user, traveling at a given speed, to bring the vehicle or bicycle to a stop after an object ½-foot high on the road becomes visible. Stopping sight distance for motorists is measured from the driver's eyes, which are assumed to be 3 ½ feet above the pavement surface, to an object ½-foot high on the road. See Index 1003.1(10) for Class I bikeway stopping sight distance guidance.

The stopping sight distances in Table 201.1 should be increased by 20 percent on sustained downgrades steeper than 3 percent and longer than one mile.

201.4 Stopping Sight Distance at Grade Crests

Figure 201.4 shows graphically the relationships between length of highway crest vertical curve, design speed, and algebraic difference in grades. Any one factor can be determined when the other two are known.

201.5 Stopping Sight Distance at Grade Sags

From the curves in Figure 201.5, the minimum length of vertical curve which provides headlight sight distance in grade sags for a given design speed can be obtained.

If headlight sight distance is not obtainable at grade sags, lighting may be considered. The District approval authority or Project Delivery Coordinator, depending upon the current District Design Delegation Agreement, and the District Traffic Engineer or designee shall be contacted to review proposed grade sag lighting to determine if such use is appropriate.

201.6 Stopping Sight Distance on Horizontal Curves

Where an object off the pavement such as a bridge pier, building, cut slope, or natural growth restricts sight distance, the minimum radius of curvature is determined by the stopping sight distance.

Available stopping sight distance on horizontal curves is obtained from Figure 201.6. It is assumed that the driver's eye is 3 ½ feet above the center of the inside lane (inside with respect to curve) and the object is ½-foot high. The line of sight is assumed to intercept the view obstruction at the midpoint of the sight line and 2 feet above the center of the inside lane when the road profile is flat (i.e. no vertical curve). Crest vertical curves can cause additional reductions in sight distance. The clear distance (m) is measured from the center of the inside lane to the obstruction.

The design objective is to determine the required clear distance from centerline of inside lane to a retaining wall, bridge pier, abutment, cut slope, or other obstruction for a given design speed. Using

radius of curvature and minimum sight distance for that design speed, Figure 201.6 gives the clear distance (*m*) from centerline of inside lane to the obstruction.

See Index 1003.1(13) for bikeway stopping sight distance on horizontal curve guidance.

When the radius of curvature and the clear distance to a fixed obstruction are known, Figure 201.6 also gives the sight distance for these conditions.

See Index 101.1 for technical reductions in design speed caused by partial or momentary horizontal sight distance restrictions. See Index 203.2 for additional comments on glare screens.

Cuts may be widened where vegetation restricting horizontal sight distance is expected to grow on finished slopes. Widening is an economic trade-off that must be evaluated along with other options. See Index 902.2 for sight distance requirements on landscape projects.

201.7 Decision Sight Distance

At certain locations, sight distance greater than stopping sight distance is desirable to allow drivers time for decisions without making last minute erratic maneuvers (see Chapter III of AASHTO, A Policy on Geometric Design of Highways and Streets, for a thorough discussion of the derivation of decision sight distance.)

On freeways and expressways the decision sight distance values in Table 201.7 should be used at lane drops and at off-ramp noses to interchanges, branch connections, roadside rests, vista points, and inspection stations. When determining decision sight distance on horizontal and vertical curves, Figures 201.4, 201.5, and 201.6 can be used. Figure 201.7 is an expanded version of Figure 201.4 and gives the relationship among length of crest vertical curve, design speed, and algebraic difference in grades for much longer vertical curves than Figure 201.4.

Decision sight distance is measured using the 3 ½-foot eye height and ½-foot object height. See Index 504.2 for sight distance at secondary exits on a collector-distributor road.

Table 201.7
Decision Sight Distance

Design Speed (mph)	Decision Sight Distance (ft)
30	450
35	525
40	600
45	675
50	750
55	865
60	990
65	1,050
70	1,105
75	1,180
80	1,260

Topic 202 - Superelevation

202.1 Basic Criteria

When a vehicle moves in a circular path, it undergoes a centripetal acceleration that acts toward the center of curvature. This force is countered by the perceived centrifugal force experienced by the motorist.

On a superelevated highway, this force is resisted by the vehicle weight component parallel to the superelevated surface and by the side friction developed between the tires and pavement. It is impractical to balance centrifugal force by superelevation alone, because for any given curve radius a certain superelevation rate is exactly correct for only one driving speed. At all other speeds there will be a side thrust either outward or inward, relative to the curve center, which must be offset by side friction.

If the vehicle is not skidding, these forces are in equilibrium as represented by the following simplified curve equation, which is used to design a curve for a comfortable operation at a particular speed:

following should be considered: staging and traffic handling requirements, accommodation of pedestrians and bicyclists, the width of approach roadbed that will exist at the time the bridge is constructed, traffic volumes, needs of the local agencies, controls in the form of existing facilities, and the practical challenges of falsework construction.

The normal width of traffic openings and required falsework spans are shown in Table 204.8.

The normal spans shown in Table 204.8 are for anchored temporary K-rail. When temporary K-rail is not anchored, add 4 feet to normal span to include K-rail deflection.

The minimum vertical falsework clearance over freeways and nonfreeways shall be 15 feet. The following items should be considered:

- Mix, volume, and speed of traffic.
- Effect of increased vertical clearance on the grade of adjacent sections.
- Closing local streets to all traffic or trucks only during construction.
- Detours.
- Carrying local traffic through construction on subgrade.
- Temporary or permanent lowering of the existing facility.
- Cost of higher clearance versus cost of traffic control.
- Desires of local agency.

Worker safety should be considered when determining vertical falsework clearance. Requests for approval of temporary vertical clearances less than 15 feet should discuss the impact on worker safety.

Temporary horizontal clearances less than shown in Table 204.8 or temporary vertical clearances less than 15 feet should be noted in the PS&E Transmittal Report.

To establish the grade of a structure to be constructed with a falsework opening, allowance must be made for the depth of the falsework. The minimum depths required for various widths of traffic opening are shown in Table 204.8.

Where vertical clearances, either temporary or permanent are critical, the District and the DES – Structure Design should work closely during the early design stage when the preliminary grades, structure depths, and falsework depths can be adjusted without incurring major design changes.

Where the vertical falsework clearance is less than 15 feet, advance warning devices are to be specified or shown on the plans. Such devices may consist of flashing lights, overhead signs, over-height detectors, or a combination of these or other devices.

Warning signs on the cross road or in advance of the previous off-ramp may be required for overheight permit loads. Check with the Regional Permit Manager.

After establishing the opening requirements, a field review of the bridge site should be made by the District designer to ensure that existing facilities (drainage, other bridges, or roadways) will not conflict with the falsework.

The placement and removal of falsework requires special consideration. During these operations, traffic should either be stopped for short intervals or diverted away from the span where the placement or removal operations are being performed. The method of traffic handling during these operations is to be included in the Special Provisions.

Topic 205 - Road Connections and Driveways

205.1 Access Openings on Expressways

Access openings are used only on expressways. The term access opening applies to openings through the right of way line which serve abutting land ownerships whose remaining access rights have been acquired by the State.

(1) Criteria for Location. Access openings should not be spaced closer than one-half mile to an adjacent public road intersection or to another

private access opening that is wider than 30 feet. When several access openings are closely spaced, a frontage road should be considered (see Index 104.3). To discourage wrong-way movements, access openings should be located directly opposite, or at least 300 feet from a median opening.

Sight distance equivalent to that required for public road intersections shall be provided (see Index 405.1).

(2) Width. The normal access opening width should be 30 feet. A greater width may result in large savings in right of way costs in some instances, but should be considered with caution because of the possibility that public use might develop. Conversion of a private opening into a public road connection requires the consent of the CTC, which cannot be committed in advance (see the Project Development Procedures Manual).

(3) Recessed Access Openings. Recessed access openings, as shown on Figure 205.1, are desirable at all points where private access is permitted and should be provided whenever they can be obtained without requiring alterations to existing adjacent improvements. When recessed openings are required, the opening should be located a minimum distance of 75 feet from the nearest edge of the traveled way.

(4) Joint Openings. A joint access opening serving two or more parcels of land is desirable whenever feasible. If the property line is not normal to the right of way line, care should be taken in designing the joint opening so that both owners are adequately served.

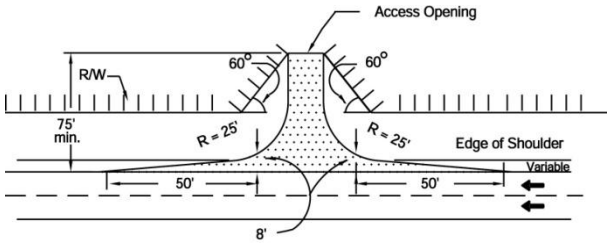
(5) Surfacing. All points of private access should be surfaced with adequate width and depth of pavement to serve the anticipated traffic. The surfacing should extend from the edge of the traveled way to the right of way line.

205.2 Private Road Connections

The minimum private road connection design is shown on Figure 205.1. Sight distance requirements for the minimum private road connection are shown on Figure 405.7 (see Index 405.1(2)(c)).

Figure 205.1

Access Openings on Expressways



RECESSED OPENING

NOTES:

- By widening the expressway shoulder, deceleration lanes may be provided where justified.
- This detail, without the recess, may be used on conventional highways.

205.3 Urban Driveways

These instructions apply to the design of driveways to serve property abutting on State highways in cities or where urban type development is encountered.

Details for driveway construction are shown on the Standard Plans. Corner sight distance requirements are not applied to urban driveways. See Index 405.1(2) for further information.

(1) Correlation with Local Standards. Where there is a local requirement regulating driveway construction, the higher standard will normally govern.

(2) Driveway Width. The width of driveways for both residential and commercial usage is measured at the throat, exclusive of any flares. ("W" as shown in Standard Plan A87A).

(3) Residential Driveways. The width of single residential driveways should be 12 feet minimum and 20 feet maximum. The width of a double residential driveway such as used for multiple dwellings should be 20 feet minimum and 30 feet maximum. The width selected should be based on an analysis of the anticipated volume, type and speed of traffic, location of buildings and garages, width of street, etc.

(4) Commercial Driveways. Commercial driveways should be limited to the following maximum widths:

(a) When the driveway is used for one-way traffic, the maximum width should be 25 feet. If the driveway serves a large parcel, where large volumes of vehicles or large vehicles are expected, the entrance maximum width should be 40 feet and the exit maximum width should be 35 feet.

(b) When the driveway is used for two-way traffic, the maximum width should be 35 feet. If the driveway serves a large parcel, where large volumes of vehicles or large vehicles are expected, then the maximum width should be 45 feet.

(c) When only one driveway serves a given property, in no case should the width of the driveway including the side slope distances exceed the property frontage.

(d) When more than one driveway is to serve a given property, the total width of all driveways should not exceed 70 percent of the frontage where such a frontage is 100 feet or less. Where the frontage is more than 100 feet, the total driveway width should not exceed 60 percent of the frontage. In either case, the width of the individual driveway should not exceed those given in the preceding paragraphs. Where more than one driveway is necessary to serve any one property, not less than 20 feet of full height curb should be provided between driveways. This distance between driveways also applies to projects where curbs and gutters are not to be placed.

(e) Certain urban commercial driveways may need to accommodate the maximum legal vehicle. The width will be determined by the use of truck turn templates.

(5) Surfacing. Where curbs, gutters, and sidewalks are to be placed, driveways should be constructed of portland cement concrete. Where only curbs and gutters are to be placed and pedestrian traffic or adjacent improvements do not warrant concrete driveway construction, the driveway may be paved with the same materials used for existing surfacing on the property to be served.

(6) Pedestrian Access. Where sidewalks traverse driveways, the sidewalk shall continue across the driveway to alert driveway users that they are crossing a pedestrian walkway, and must yield to pedestrians on the sidewalk. Driveway corner radii should also be minimized to encourage low-speed turns by motorized vehicles and bicycles. For accessibility requirements, see DIB 82. Provision of this feature, as indicated in the Standard Plans, may require the acquisition of a construction easement or additional right of way. Assessment of these needs must be performed early enough in the design to allow time for acquiring any necessary permits or right of way. Additionally, designers should consider the following:

- In many cases providing the pathway along the back of the driveway will lower the elevation at the back of the sidewalk. Depending on grades behind the sidewalk the potential may exist for roadway generated runoff to enter private property. The need for features such as low berms within the construction easement, or installation of catch basins upstream of the driveway should be determined.

When there are no sidewalks or other pedestrian facilities that follow the highway, the designer may develop driveway details that eliminate the flatter portion along the back edge in lieu of using the Standard Plans for driveways. Refer to Topic 105 for additional information related to pedestrian facilities.

205.4 Driveways on Frontage Roads and in Rural Areas

On frontage roads and in rural areas where the maximum legal vehicle must be accommodated, standard truck-turn templates should be used to determine driveway widths where the curb or edge of traveled way is so close to the right of way line that a usable connection cannot be provided within the standard limits.

(4) Trailer Track – Semitrailer axle width, measured from outside face of tires.

(5) Lock To Lock Time - The time in seconds that an average driver would take under normal driving conditions to turn the steering wheel of a vehicle from the lock position on one side to the lock position on the other side. The default in AutoTurn software is 6 seconds.

(6) Steering Lock Angle - The maximum angle that the steering wheels can be turned. It is further defined as the average of the maximum angles made by the left and right steering wheels with the longitudinal axis of the vehicle.

(7) Articulating Angle - The maximum angle between the tractor and semitrailer.

Topic 405 - Intersection Design Standards

405.1 Sight Distance

(1) Stopping Sight Distance. See Index 201.1 for minimum stopping sight distance requirements.

(2) *Corner Sight Distance*.

(a) General--At unsignalized intersections a substantially clear line of sight should be maintained between the driver of a vehicle, bicyclist or pedestrian stopped on the minor road and the driver of an approaching vehicle on the major road that has no stop. Line of sight for all users should be included in right of way, in order to preserve sight lines.

Adequate time should be provided for the stopped vehicle on the minor road to either cross all lanes of through traffic, cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter their speed. The visibility required for these maneuvers form a clear sight triangle with the corner sight distance b and the crossing distance a_1 or a_2 (see Figure 405.1 as an example of corner sight distance at a two-lane, two-way highway). Dimensions a_1 and a_2 are measured from the decision point to the center of the lane. The actual number of lanes will vary on the major and minor roads. There should be no sight obstruction within the clear sight triangle.

The methodology used for the driver on the minor road that is stopped to complete the necessary maneuver while the approaching vehicle travels at the design speed of the major road is based on gap-acceptance behavior. A 7-1/2 second criterion is applied to a passenger car (including pickup trucks) for a left turn from a stop on the minor road. However, this time gap does not account for a single-unit truck (no semitrailer), a combination truck (see Index 404.4 for truck tractor-semitrailer guidance), a right-turn from a stop, or for a crossing maneuver. See Table 405.1A for the time gap that addresses these situations for the assumed design vehicle making these maneuvers from the minor road.

In determining corner sight distance, a set back distance for the vehicle waiting on the minor road must be assumed as measured from the edge of traveled way of the major road. Set back for the driver of the vehicle on the minor road should be a minimum of 10 feet plus the shoulder width of the major road but not less than 15 feet. The location of the driver's eye for the set back is the decision point per Figure 405.1. Corner sight distance and the driver's eye set back are also illustrated in Figures 405.7 and 504.3I. Line of sight for corner sight distance for passenger cars is to be determined from a 3 and 1/2-foot height at the location of the driver of the vehicle in the center of the minor road lane to a 3 and 1/2-foot object height in the center of the approaching outside lane of the major road. This provides for reciprocal sight by both vehicles. The passenger car driver's eye height should be applied to all minor roads. In addition, a truck driver's eye height of 7.6 feet should be applied to the minor road where applicable. Additionally, if the major road has a median barrier, a 2-foot object height should be used to determine the median barrier set back. A median that is wide enough to accommodate a stopped vehicle should also provide a clear sight triangle.

The minimum corner sight distance (feet) should be determined by the equation: $1.47V_mT_g$, where V_m is the design speed (mph) of the major road and T_g is the time gap (seconds) for the minor road vehicle to enter the major road. The values given in Table 405.1A should be used to determine T_g based on the design vehicle, the type of maneuver, and whether the stopped vehicle's rear wheels are on an upgrade exceeding 3 percent. The distance from the edge of traveled way to the rear wheels at the minor road stop location should be assumed as: 20 feet for a passenger car, 30 feet for a single-unit truck, and 72 feet for a combination truck.

(b) Public Road Intersections (Refer to Topic 205)--At unsignalized public road intersections (see Index 405.7) corner sight distance applies.

At signalized intersections the corner sight distances should also be applied whenever possible. Even though traffic flows are designed to move at separate times, unanticipated conflicts can occur due to violation of signal, right turns on red, malfunction of the signal, or use of flashing red/yellow mode.

The minimum value for corner sight distance at signalized intersections should be equal to the stopping sight distance as given in Table 201.1, measured as previously described. This includes an urban driveway that forms a leg of the signalized intersection.

(c) Private Road Intersections (Refer to Index 205.2) and Rural Driveways (Refer to Index 205.4)--The minimum corner sight distance should be equal to the stopping sight distance as given in Table 201.1, measured as previously described.

(d) Urban Driveways (Refer to Index 205.3)--Corner sight distance requirements as described above are not applied to urban driveways. If parking is allowed on the major road, parking should be prohibited on both sides of the driveway per the California MUTCD, 3B.19.

(3) Decision Sight Distance. At intersections where the State route turns or crosses another State route, the decision sight distance values given in Table 201.7 should be used. In computing and measuring decision sight distance, the 3.5-foot eye height and the 0.5-foot object height should be used, the object being located on the side of the intersection nearest the approaching driver.

The application of the various sight distance requirements for the different types of intersections is summarized in Table 405.1B.

Table 405.1B
Application of Sight Distance Requirements

Intersection Types	Sight Distance		
	Stopping	Corner	Decision
Private Roads	X	X(1)	
Public Streets and Roads	X	X	
Signalized Intersections	X	X(2)	
State Route Intersections & Route Direction Changes, with or without Signals	X	X	X

NOTES:
(1) Per Index 405.1(2)(c), the minimum corner sight distance shall be equal to the stopping sight distance as given in Table 201.1. See Index 405.1(2)(a) for setback requirements.
(2) Apply corner sight distance requirements at signalized intersections whenever possible due to unanticipated violations of the signals or malfunctions of the signals. See Index 405.1(2)(b).

(4) Acceleration Lanes for Turning Moves onto State Highways. At rural intersections, with "STOP" control on the local cross road, acceleration lanes for left and right turns onto the State facility should be considered. At a minimum, the following features should be

Figure 405.1
Corner Sight Distance

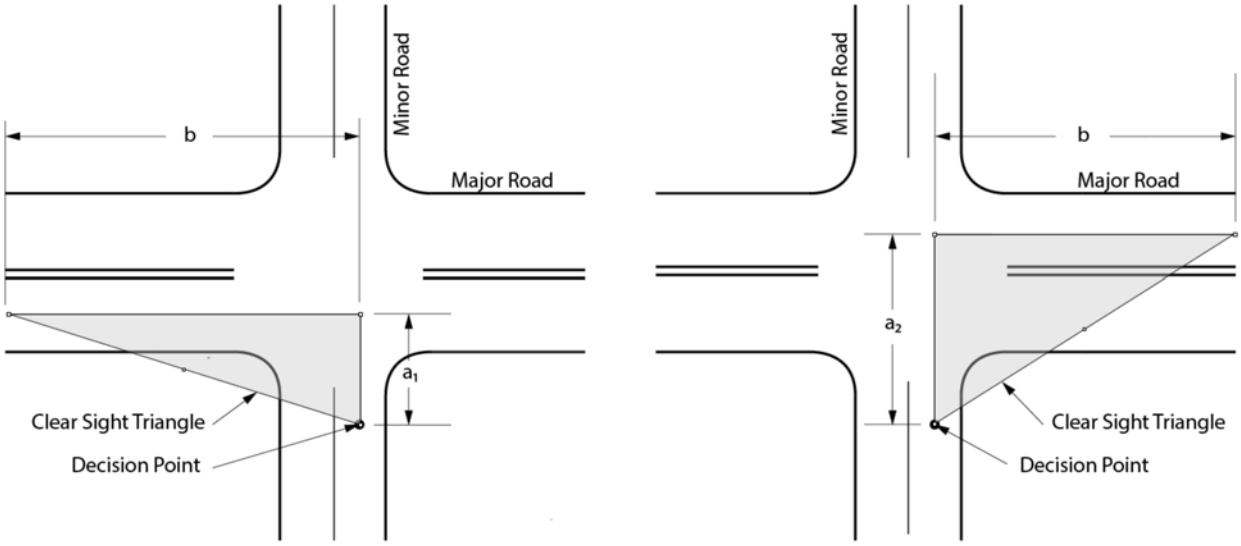


Table 405.1A
Corner Sight Distance Time Gap (T_g) for Unsignalized Intersections

Design Vehicle	Left-turn from Stop (s)	Right-turn from Stop and Crossing Maneuver (s)
Passenger Car	7½	6½
Private Road Intersection		
Rural Driveway		
Single-Unit Truck	9½	8½
Public Road Intersection		
Combination Truck	11½	10½
Major and Minor Roads on Routes:		
National Network		
Terminal or Service Access		
California Legal		
KPRA Advisory		

Notes: Time gaps are for a stopped vehicle to turn left, right or cross a two-lane highway with no median and with minor road grades of 3 percent or less. The table values should be adjusted as follows:
(1) For multilane highways—When crossing or making a left-turn onto a two-way major road with more than two lanes, add 0.5 s for passenger cars or 0.7 s for trucks for each additional lane to be crossed. Median widths should be converted to an equivalent number of lanes in applying the 0.5 s and 0.7 s criteria. For example, an 18-foot wide median is equivalent to 1.5 lanes; this requires an additional 0.75 s for a passenger car to cross or an additional 1.05 s for a truck to cross.
(2) For minor road approach grades—If the minor road approach grade is an upgrade that exceeds 3 percent and the rear wheels of the design vehicle are on the grade exceeding 3 percent, add 0.2 s for each percent grade for left-turns; or add 0.1 s for each percent grade for right-turns and crossing maneuvers. For example, a passenger car is turning right from a minor road and at the stop location its rear wheels are on a 4 percent upgrade; this requires an additional 0.4 s for the right-turn.
(3) Unique situations may necessitate a different design vehicle for a particular minor road than those listed here (e.g., predominant combination trucks out of a rural driveway). Additionally, for intersections at skewed angles less than 60 degrees, a further adjustment is needed. See the AASHTO "A Policy on Geometric Design of Highways and Streets" for guidance.

evaluated for both the major highway and the cross road:

- divided versus undivided
- number of lanes
- design speed
- gradient
- lane, shoulder and median width
- traffic volume and composition of highway users, including trucks and transit vehicles
- turning volumes
- horizontal curve radii
- sight distance
- proximity of adjacent intersections
- types of adjacent intersections

For additional information and guidance, refer to AASHTO, A Policy on Geometric Design of Highways and Streets, the District Traffic Engineer or designee, the District Design Liaison, and the Project Delivery Coordinator.

405.2 Left-turn Channelization

(1) General. The purpose of a left-turn lane is to expedite the movement of through traffic by, controlling the movement of turning traffic, increasing the capacity of the intersection, and improving safety characteristics.

The District Traffic Branch normally establishes the need for left-turn lanes.

(2) Design Elements.

(a) Lane Width – **The lane width for both single and double left-turn lanes on State highways shall be 12 feet.**

For conventional State highways with posted speeds less than or equal to 40 miles per hour and AADTT (truck volume) less than 250 per lane that are in urban, city or town centers (rural main streets), the minimum lane width shall be 11 feet.

When considering lane width reductions adjacent to curbed medians, refer to Index 303.5 for guidance on effective roadway width, which may vary depending on drivers' lateral positioning and shy distance from raised curbs.

(b) Approach Taper -- On conventional highways without a median, an approach taper provides space for a left-turn lane by moving traffic laterally to the right. The approach taper is unnecessary where a median is available for the full width of the left-turn lane. Length of the approach taper is given by the formula on Figures 405.2A, B and C.

Figure 405.2A shows a standard left-turn channelization design in which all widening is to the right of approaching traffic and the deceleration lane (see below) begins at the end of the approach taper. This design should be used in all situations where space is available, usually in rural and semi-rural areas or in urban areas with high traffic speeds and/or volumes.

Figures 405.2B and 405.2C show alternate designs foreshortened with the deceleration lane beginning at the 2/3 point of the approach taper so that part of the deceleration takes place in the through traffic lane. Figure 405.2C is shortened further by widening half (or other appropriate fraction) on each side. These designs may be used in urban areas where constraints exist, speeds are moderate and traffic volumes are relatively low.

(c) Bay Taper -- A reversing curve along the left edge of the traveled way directs traffic into the left-turn lane. The length of this bay taper should be short to clearly delineate the left-turn move and to discourage through traffic from drifting into the left-turn lane. Table 405.2A gives offset data for design of bay tapers. In urban areas, lengths of 60 feet and 90 feet are normally used. Where space is restricted and speeds are low, a 60-foot bay taper is appropriate. On rural high-speed highways, a 120-foot length is considered appropriate.

(d) Deceleration Lane Length -- Design speed of the roadway approaching the intersection

APPENDIX J

STACKING/MINIMUM QUEUE REQUIREMENTS

APPENDIX I

GATE STACKING QUEUE ANALYSIS[1]

PROJECT:	Westgrove Apts		DATE:	2019.09.11
LOCATION:	Lugonia Ave West of Nevada St (Main)		JN:	18-00026
	Project Main Entry			
GATE LOCATION	AM		PM	
DEMAND RATE (q) (Vehicles/ hour)	31		88	
SERVICE RATE (Q) per channel	180.00		180.00	
NO. OF SERVICE POSITIONS (N)	1		1	
NO. OF STORAGE LANES (N1)	2		2	
		P'		P'
PROBABILITY OF NOT EXCEEDING (P) [2]	0.05	95%	0.05	95%
UTILIZATION FACTOR (q/(N*Q))	0.17		0.49	
LENGTH OF VEHICLE (L) FEET	25.00		25.00	
UTILIZATION FACTOR Q(M) VALUE [3]	0.17		0.49	
NO. OF VEHICLES BEING SERVED (N)	1.00	ROUND VALUE TO	1.00	ROUND VALUE TO
NO. OF VEHICLES IN QUEUE (M)	-0.30	0	2.19	3
M = ((LN(P) - LN(Q(M))/LN(p)) - 1				
TOTAL NUMBER OF VEHICLES (N+M)	1.00	1	3.19	4
NO. OF VEHICLES IN EACH LANE	0.50	1	1.59	2
PER LANE ((N+M)/N1)				
LENGTH OF QUEUE (L) FEET		25		50

Notes:

(1) Source: Institute of Transportation Engineers, Transportation and Land Development, 1988 Applications of Queueing Analysis p 231

(2) P' = confidence interval, (ie. 0% of the time the queue will be equal to or less than the maximum vehicle que.)

(3) Q(m) = utilization factor, values based upon number of service channels (n) and utilization factor (q/nq) as shown on table 8-11, pg.231, Transportation And Land Development, Institute Of Transportation Engineers (ITE), 1988.

APPENDIX I

GATE STACKING QUEUE ANALYSIS[1]

PROJECT:	Nevada Street - Redlands Apt		DATE:	2019.09.11
LOCATION:	Nevada Street - Redlands (Parking structure)		JN:	18-00026

GATE LOCATION	AM		PM	
DEMAND RATE (q) (Vehicles/ hour)	29		84	
SERVICE RATE (Q) per channel	180.00		180.00	
NO. OF SERVICE POSITIONS (N)	1		1	
NO. OF STORAGE LANES (N1)	1		1	
		P'		P'
PROBABILITY OF NOT EXCEEDING (P) [2]	0.05	95%	0.05	95%
UTILIZATION FACTOR (q/(N*Q))	0.16		0.47	
LENGTH OF VEHICLE (L) FEET	25.00		25.00	
UTILIZATION FACTOR Q(M) VALUE [3]	0.16		0.47	
NO. OF VEHICLES BEING SERVED (N)	1.00	ROUND VALUE TO	1.00	ROUND VALUE TO
NO. OF VEHICLES IN QUEUE (M)	-0.36	0	1.93	2
M = ((LN(P) - LN(Q(M))/LN(p)) - 1				
TOTAL NUMBER OF VEHICLES (N+M)	1.00	1	2.93	3
NO. OF VEHICLES IN EACH LANE	1.00	1	2.93	3
PER LANE ((N+M)/N1)				
LENGTH OF QUEUE (L) FEET		25		75

Notes:

(1) Source: Institute of Transportation Engineers, Transportation and Land Development, 1988 Applications of Queueing Analysis p 231

(2) P' = confidence interval, (ie. 0% of the time the queue will be equal to or less than the maximum vehicle que.)

(3) Q(m) = utilization factor, values based upon number of service channels (n) and utilization factor (q/nq) as shown on table 8-11, pg.231, Transportation And Land Development, Institute Of Transportation Engineers (ITE), 1988.

APPENDIX K

PRELIMINARY CONSTRUCTION COST ESTIMATES FROM CONSTRUCTION MANAGEMENT PROGRAM (SAN BERNARDINO COUNTY)

PRELIMINARY CONSTRUCTION COST ESTIMATES
FOR
CONGESTION MANAGEMENT PLAN

Add One Lane Each Direction on Freeway	
Asphalt Concrete Pavement	$2,300,000 Per Mile
Portland Cement Concrete Pavement	$2,800,000 Per Mile
Includes: Excavation Paving Section Barrier Shoulder Upgrade Drainage System Traffic Control Mobilization @10% Design @11% Construction Mgt. @12.5%	**Excludes:** Environmental Costs Right of Way Widening of Bridge Structures Added Retaining Walls Added Sound Walls

Widen Existing UC Structures	
Total Cost =	$160 Per Square Foot
Includes: Structure Mobilization @10% Design @11% Construction Mgt. @12.5%	**Excludes:** Environmental Costs Right of Way Traffic Control Ramp Modifications Signal/Lighting Up Grades Drainage Upgrades Added Retaining Walls Added Sound Walls

Diamond Interchanges			
$10,000,000	EACH	NEW IC	Minimal Row/Environmental
$15,000,000	EACH	NEW IC	Includes Row/Environmental
$20,000,000	EACH	EXISTING	Minimal Row/Environmental
$25,000,000	EACH	EXISTING	Includes Row/ Environmental
Includes: Structure Retaining Walls Soil Nail Walls Drainage System Ramps Mobilization @ 10% Design @ 11% Construction Mgt. @ 12.5%		**Excludes:** As listed	

Retaining Walls

Height Feet	Structure Cost $/LF	Mobilization Design Constr. Mgt. $/LF	Total $/LF
4	$190	$70	$260
6	$260	$90	$350
8	$380	$140	$520
10	$430	$150	$580
12	$480	$170	$650
14	$590	$210	$800
16	$660	$240	$900

Excludes: Environmental Costs
Right of Way

12' High Sound Walls (Masonry Block on Footing)

Structure Cost $/Mile	Mobilization Design Constr. Mgt. $/Mile	Total $/Mile
$800,000	$300,000	$1,100,000

Widen Conventional Highway

1. Add one outside lane (Work includes earthwork, modify existing drainage system and construct AC shoulder section.	
Asphalt Concrete Pavement	$1,000,000/Mile
2. Add one outside lane each direction (Work includes earthwork, modify existing drainage system and construct AC shoulder section)	
Asphalt Concrete Pavement	$2,000,000/Mile
With Median Concrete Barrier	$2,200,000/Mile
With Median Double Thrie Beam Barrier	$2,300,000/Mile

Local Interchange Improvements

1. New Interchange	
Urban Interchange	$10,000,000 to $17,000,000
Partial – Cloverleaf Interchange (Work includes new OC structure, earthwork, signal)	$6,000,000
Diamond Interchange (Work includes new OC structure, earthwork, signal)	$5,000,000

Local Interchange Improvements CONT…		
2.	Reconstruct Existing Interchange	
	Realign and widen existing ramps (to 2 lanes)	$750,000/Each Ramp
	Construct Loop on – ramps (Does not include realigning existing ramp)	$700,000/Each Ramp
	Upgrade existing Diamond IC to Partial – Cloverleaf	$6,000,000
3.	Improve Existing Interchange	
	Widen ramps (From one to two lanes)	$350,000/Each Ramp
	Widen existing OC structure	$110/Sq. Ft.
	Signalize ramp intersection	$90,000/Location
	Upgrade existing signal at ramp terminal	$75,000/Intersection
	Upgrade existing signal at ramp terminal (Add lights only)	$25,000/Each
4.	Ramp Metering System	$60,000/Each location
Intersection Improvements		
1.	Signalization of local intersection (with some roadwork)	$250,000
2.	Upgrade existing intersection signalization	$75,000
3.	Upgrade existing Traffic Controller/Assembles	$40,000/Each
4.	Install new signal	$90,000/location
5.	Add signal heads	$25,000/Intersection
6.	Construct left – turn lane (240’ long)	$50,000/Each Location
7.	Street widening (12’ wide) (Pavement only)	$180,000/Mile
8.	Curb and gutter (Type A2-8)	$15/LF

Other Improvements		
1.	Construct new OC structure (Does not include roadway work)	$100/Sq. Ft.
2.	Construct Retaining Walls (Type 1)	$285/LF (H=8') $360/LF (H=10') $460/LF (H=12') $560/LF (H=14')
3.	Construct Soundwall	$1,000,000/Mile (H=12')
4.	Traffic Management Plan	10% of total construction costs

NOTE: This cost estimate does not include the following items:

1. R/W engineering, appraisal, acquisition and utilities relocation costs.
2. Minor items and supplemental work (10%).
3. Mobilization (10%).
4. Contingencies (25%).
5. Landscaping costs.

General Note: **When adding a through lane, the minimum distance is 600' approach and 600' departure to the next intersection.**



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