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SUPPLEMENTAL TRANSPORTATION ASSESSMENT

ACTON PROJECT

Acton Area of Unincorporated Los Angeles County, California
January 21, 2021

Prepared for:

Rincon Consultants, Inc.
180 N. Ashwood Avenue
Ventura, California 93003

LLG Ref. 1-19-4359-2

REGISTERED PROFESSIONAL ENGINEER
CLARE M. LOOK-JAEGER
TR1878
EXP. 06/30/21
TRAFFIC
STATE OF CALIFORNIA

Under the Supervision of:

Clare M. Look-Jaeger

Clare M. Look-Jaeger, P.E.
Principal

Linscott, Law & Greenspan, Engineers

600 S. Lake Avenue
Suite 500
Pasadena, CA 91106

626.796.2322 T
626.792.0941 F
www.llgengineers.com

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SUPPLEMENTAL TRANSPORTATION ASSESSMENT

ACTON PROJECT

Acton Area of Unincorporated Los Angeles County, California
January 21, 2021

1.0 INTRODUCTION AND PURPOSE OF THE SUPPLEMENTAL TRANSPORTATION ASSESSMENT

This voluntary supplemental transportation assessment has been prepared to reassess the potential traffic impacts of the proposed Acton Project (i.e., formerly referred to as the Acton Retail Center Project and referenced herein as the "proposed project") and to more formally respond to specific transportation-related issues/points contained in the recent Superior Court of the State of California (County of Los Angeles) and Court of Appeal of the State of California decision documents associated with the previously County-approved project. The following court decision documents were reviewed in response to Save Our Rural Town (SORT) petitions and Respondent's Appeal:

- Superior Court of the State of California for the County of Los Angeles, Hearing on Petition for Writ of Mandate, Ruling on Submitted Matter, Save Our Rural Town v. County of Los Angeles, et al, July 27, 2018

- Court of Appeal of the State of California, Second Appellate District, Division Five, Save Our Rural Town v. County of Los Angeles, et al, September 10, 2020

The proposed project consists of a 3,300 square-foot fast-food drive-through restaurant and a 6,000 square-foot commercial retail building. While traffic impact studies were originally prepared for the project by Hall & Foreman, Inc. (i.e., in January 2015 and August 2015) and were reviewed and approved by the County, this voluntary supplemental transportation assessment was prepared to provide an update of operating conditions since many years have transpired since the preparation of those studies, as well as to formally respond to issues/points raised in the above court rulings. The issues are summarized below, with corresponding references within this assessment:

<u>Traffic Signal Warrant Analyses</u>

In response to the points raised in the July 27, 2018 Superior Court ruling, formal traffic signal warrant analyses have been prepared for the nearest unsignalized intersection (i.e., the Crown Valley Road/Sierra Highway intersection). A range of traffic signal warrants, above and beyond just the Peak Hour Warrant, have been prepared for this intersection. The referenced intersection was selected for assessment since it will have the greatest volume attributable to the proposed project and the greatest likelihood of meeting warrants. Based on the traffic signal warrants analyses contained herein, only one of the four traffic signal warrants (Warrant 3 – Peak Hour Warrant) prepared for the Crown Valley Road/Sierra Highway intersection is satisfied based on strict application of the MUTCD warrant guidelines. Warrant 1 (Eight-Hour Vehicular Volume), Warrant 2 (Four-Hour Vehicular Volume), and Warrant 7 (Crash Experience) are not satisfied. As such, it is recommended

that the County continue to monitor conditions over time to assess whether additional warrants might be met in the future.

Refer to ***Section 12.0*** and ***Appendix F*** for a comprehensive discussion of the traffic signal warrant analyses prepared as part of this voluntary supplemental transportation assessment.

Crown Valley Road/Antelope Woods Road Intersection & Other Intersection Analyses

This supplemental transportation assessment includes an updated analysis of the Crown Valley Road/Antelope Woods Road intersection, as well as an updated analysis of all other for all study intersections, using both the County's prior adopted Level of Service (LOS) methodology (Intersection Capacity Utilization [ICU]) and Highway Capacity Manual (HCM) methodology. The County's prior methodology was adopted pre-Senate Bill (SB) 743, which had an implementation date of July 1, 2020 and shifted away from LOS to vehicle miles traveled (VMT) for purposes of assessing transportation impacts under the California Environmental Quality Act (CEQA). It is important to note that at the time of the preparation of the prior transportation impact studies by Hall & Foreman, Inc., the County's significance thresholds were based on a sliding scale according to an intersection's LOS determined through employment of the ICU methodology and the forecast increase in the ICU value due to a project, as VMT-based thresholds were not yet adopted. While the County did not and does not have significance thresholds for purposes of CEQA compliance employing the HCM methodology, all of the study intersections contained herein have been assessed using the HCM methodology for informational purposes. All intersections are forecast to operate at acceptable LOS (i.e., LOS A, B or C) during both the weekday AM and PM peak hours, based on the updated traffic counts (i.e., which were conducted prior to the Covid-19 pandemic) and reflect the latest intersection configurations.

It is important to note that the intersection of Crown Valley Road/Antelope Woods Road is not forecast to operate at LOS F as was the claim of the petitioner SORT, as the westbound approach has since been modified to a two lane approach (i.e., with one left-through lane and one right-turn only lane) as evidenced by the recent installation of two "STOP" pavement markings on the approximately 26-foot wide approach to Crown Valley Road intersection. This intersection is now forecast to operate at LOS C under the HCM methodology for all existing and future analysis conditions. Refer to ***Sections 9.0*** and ***10.0*** and ***Appendix D*** of this supplemental assessment for a comprehensive discussion of the reassessment of existing, existing with project, future pre-project and future with project operating conditions employing the HCM methodology.

Drive-Through Use Rate and Associated Back-up on Sierra Highway

A detailed drive-through service lane analysis has been prepared as part of this supplemental assessment and confirms that the proposed service lane storage and capacity is sufficient to meet the anticipated peak drive through service lane demand associated with the proposed project. The drive-through service lane analysis is based on empirical surveys conducted at other fast-food restaurants. No vehicle queuing back out onto the public right-of-way is expected. Refer to ***Section 3.0*** and specifically ***Sections 3.1*** and ***3.4*** for a full discussion of the project's proposed site access scheme

and drive-through service lane queuing analysis. A review of the forecast project traffic volumes and potential vehicle queuing at the site driveways has also been prepared as part of this supplemental assessment and is summarized in ***Section 9.3***.

Pedestrian Hazards

As part of this supplemental transportation assessment, detailed pedestrian counts have been conducted at all of the study intersections during weekday peak hours, including during times that coincided with the arrival and dismissal periods associated with the High Desert Middle School which is located along the south side of Antelope Woods Road, east of Crown Valley Road. In addition, detailed reviews of the directionality of all pedestrian crossings were conducted. These subsequent field studies also noted the fact that a sidewalk beneath the SR-14 Freeway, extending from Antelope Woods Road on the south to Sierra Highway on the north, has been constructed since the time prior transportation impact studies were prepared (i.e., post 2015). American With Disabilities (ADA) access ramps have also been constructed post-2015. Refer to ***Section 3.0*** and specifically ***Section 3.2*** for a full discussion of the detailed analysis of pedestrian circulation, pedestrian crossings/volumes during peak hours as well as pedestrian amenities.

Supplemental SB 743 Analysis – Qualitative VMT Assessment

While not raised in any of the prior court ruling documents, a voluntary Vehicle Miles Traveled Analysis (VMT) has been prepared as part of this supplemental transportation assessment and is fully discussed herein within ***Section 13.0***, since Senate Bill (SB) 743 is now in effect (i.e., with a July 1, 2020 implementation date). Based on the County's latest transportation impact analysis guidelines and VMT screening criteria related to retail project size, a less than significant VMT impact is expected due to the development of the proposed project, as it is a retail project as defined by the County and is less than 50,000 square feet. Thus, a quantitative VMT assessment is not required to be performed since the project is expected to result in a less than significant VMT impact.

Trip Generation Estimates

Both of the prior Hall & Foreman, Inc. transportation impact studies utilized industry-standard trip generation rates published by the Institute of Transportation Engineers, *Trip Generation Manual,* 9th Edition, 2012, which was current at the time of study preparation. In 2017, ITE published its 10th Edition, and those rates have been utilized for the fast-food restaurant with drive-through component for purposes of this assessment, as this document serves as a supplemental update. As the 10th Edition no longer contains trip generation rates for the Specialty Retail component (ITE Land Use Category 826), the 9th Edition rates continue to be employed for analysis purposes. In addition, a pass-by rate of only ten percent (10%) has been employed for the analysis, with no internal capture trip reduction so as to provide a conservative analysis. This is also reflective of the Applicant's commitment to not provide any signage for the drive-through restaurant that would be visible from the SR-14 Freeway. Refer to ***Section 7.0*** of this assessment for a comprehensive discussion of vehicular trip generation associated with the proposed project.

1.1 Supplemental Transportation Assessment Overview

As noted above, this voluntary transportation assessment has been conducted to reassess the potential traffic impacts of the proposed and to more formally respond to specific transportation-related points contained in the recent court documents dated July 2018 and September 2020. The proposed project site is located along the south side of Sierra Highway, just west of Crown Valley Road, in the Acton area of the unincorporated Los Angeles County, California. The project site is bounded by Sierra Highway to the north, State Route 14 (SR-14) Freeway to the south, and existing commercial development to the east and west. The proposed project location and general vicinity are shown in ***Figure 1-1***.

This assessment is based on criteria set forth in the County of Los Angeles ("County") traffic study guidelines which were in effect at the time of the project submittal.[1] This transportation assessment re-evaluates potential project-related impacts at six key intersections in the vicinity of the project site. The study intersections were previously determined in consultation with the Los Angeles County Public Works ("LACPW") staff. As described above, the Highway Capacity Manual methodology was also used to determine the delays and corresponding Levels of Service at the study intersections. The significance of potential impacts caused by project-generated traffic was identified using the criteria set forth in the prior LACPW traffic study guidelines. A voluntary VMT assessment to comply with SB 743 and current County transportation impact analysis guidelines is also provided for informational purposes.

This study (i) presents existing traffic volumes, (ii) includes existing traffic volumes with the forecast traffic volumes from the proposed project, (iii) recommends mitigation measures, where necessary, (iv) forecasts future cumulative traffic volumes with the proposed project, (vi) determines future cumulative traffic impacts, and (vii) recommends mitigation measures, where necessary.

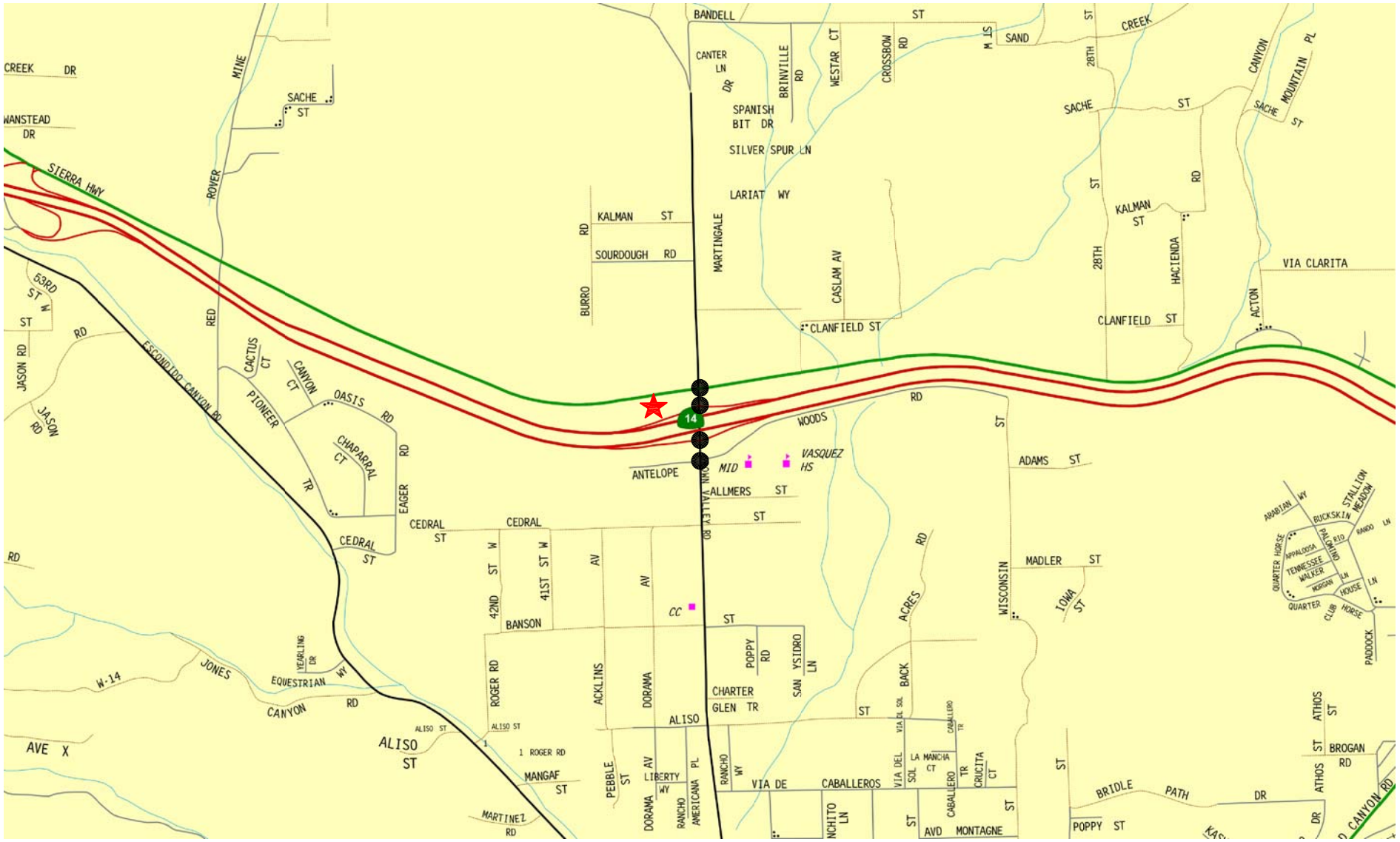
1.2 Study Area

A total of four off-site study intersections have been identified for evaluation of potential project-related significant traffic impacts and two driveways have also been assessed. These study locations provide local access to the study area and define the extent of the boundaries for this traffic impact investigation. Further discussion of the existing street system and study area is provided in Section 4.0 herein.

The general location of the project in relation to the study locations and surrounding street system is presented in *Figure 1–1*. The traffic analysis study area is generally comprised of those locations which have the greatest potential to experience significant traffic impacts due to the proposed project as defined by the Lead Agency. In the traffic engineering practice, the study area generally includes those intersections that are:

a. Immediately adjacent or in close proximity to the project site, including the north-south alley which borders the project site to the west;

[1] *Traffic Impact Analysis Report Guidelines*, County of Los Angeles Department of Public Works, January 1, 1997.



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MAP SOURCE: RAND MCNALLY & COMPANY

PROJECT SITE

STUDY INTERSECTION

FIGURE 1-1
VICINITY MAP

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b. In the vicinity of the project site that are documented to have current or projected future adverse operational issues; and

c. In the vicinity of the project site that are forecast to experience a relatively greater percentage of project-related vehicular turning movements (e.g., at freeway ramp intersections).

The study intersections selected for analysis were based on the above criteria, the proposed project's calculated peak hour vehicle trip generation, the anticipated distribution of project vehicular trips and existing intersection/corridor operations. The LACPW staff confirmed the appropriateness of the study intersections. The four off-site study intersections are identified in *Figure 1-1*.

1.3 Senate Bill 743 Overview

On September 27, 2013, Governor Brown signed Senate Bill (SB) 743 (Steinberg, 2013). Among other things, SB 743 created a process to change the methodology to analyze transportation impacts under California Environmental Quality Act (CEQA - Public Resources Code section 21000 and following), which could include analysis based on project vehicle miles traveled (VMT) rather than impacts to intersection Level of Service. On December 30, 2013, the State of California Governor's Office of Planning and Research (OPR) released a preliminary evaluation of alternative methods of transportation analysis. The intent of the original guidance documentation was geared first towards projects located within areas that are designated as transit priority areas, to be followed by other areas of the State. OPR updated the technical advisory that accompanies the revised CEQA Guidelines in April 2018 and submitted the proposed updates to the CEQA Guidelines to the California Natural Resources Agency (NRA). In December 2018, the California NRA certified and adopted the CEQA Guidelines implementing SB743. The mandatory implementation date was July 1, 2020.

It is noted that the County has now updated its transportation study guidelines, including the adoption of new VMT-based significance thresholds. Following adoption, projects need to comply with the updated transportation evaluation framework, thus bringing the County into compliance with the state mandate. While the analysis in this assessment utilizes the prior existing, long-established protocols in accordance with the County's prior transportation study guidelines, this assessment has been expanded to also summarize a VMT screening process which concludes that a quantitative VMT assessment is not required.

1.4 Congestion Management Program Status

The Congestion Management Program (CMP) was previously a state-mandated program that was enacted by the California State Legislature with the passage of Proposition 111 in 1990 that primarily utilized a level of service (LOS) performance metric. Senate Bill 743 contains amendments to current congestion management law that allows counties to opt out of the LOS standards that would otherwise apply in areas where CMPs are utilized. Pursuant to California Government Code §65088.3, local jurisdictions may opt out of the CMP requirement without

penalty if a majority of the local jurisdictions representing a majority of the County's population formally adopt resolutions requesting to opt out of the program. As of October 2019, the majority of local agencies representing the majority of the County's population have adopted resolutions to opt out of the program. Therefore, the CMP is no longer applicable in Los Angeles County.

2.0 PROJECT DESCRIPTION[2]

2.1 Site Location

The proposed project site is located along the south side of Sierra Highway, just west of Crown Valley Road, in the Acton area of the unincorporated Los Angeles County, California. The project site is bounded by Sierra Highway to the north, SR-14 Freeway to the south, and existing commercial development to the east and west. The proposed project location and general vicinity are shown in *Figure 1-1*.

The existing approximate two-acre project site is presently vacant. Existing curb, gutter, sidewalk and street lighting is presently provided adjacent to the project site along Sierra Highway (i.e., along the northerly property frontage). An aerial photograph of the existing project site, the adjacent roadway, and the immediate surrounding uses are presented in ***Figure 2-1***.

2.2 Proposed Project Description

The proposed project consists of the development of a multi-use commercial project with retail and restaurant land use components. The individual land use components (i.e., retail and restaurant) are planned to be accommodated in two stand-alone buildings as part of the proposed project. The retail land use component is planned to be contained within a single 6,000 square-foot building which will be located in the westerly portion of the project site. The restaurant land use component entails a 3,300 square-foot building that is planned to provide 68 seats and will be located in the easterly portion of the project site. The restaurant land use component also includes a drive-through service lane to be located along the east side of the building (i.e., adjacent to the easterly property frontage). Additionally, an ancillary 1,600 square-foot storage building is planned to be constructed at the southwest corner of the project site and thus was not included for trip generation purposes as any employment associated with this space would be accommodated within the restaurant building square footage. The project site is currently planned to provide a total of 64 parking spaces via interconnected surface parking areas. Construction of the proposed project is expected to commence in year 2020 with build-out in year 2022. The site plan for the proposed project is illustrated in ***Figure 2-2***.

Vehicular access to the project site is planned to be accommodated via two driveways along Sierra Highway (i.e., along the northerly property frontage). Further discussion of the project's site access and circulation scheme is provided in Section 3.0 herein.

[2] Project description data source: Rincon Consultants, Inc.

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MAP SOURCE: GOOGLE EARTH

PROJECT SITE

FIGURE 2-1
AERIAL PHOTOGRAPH OF EXISTING PROJECT SITE

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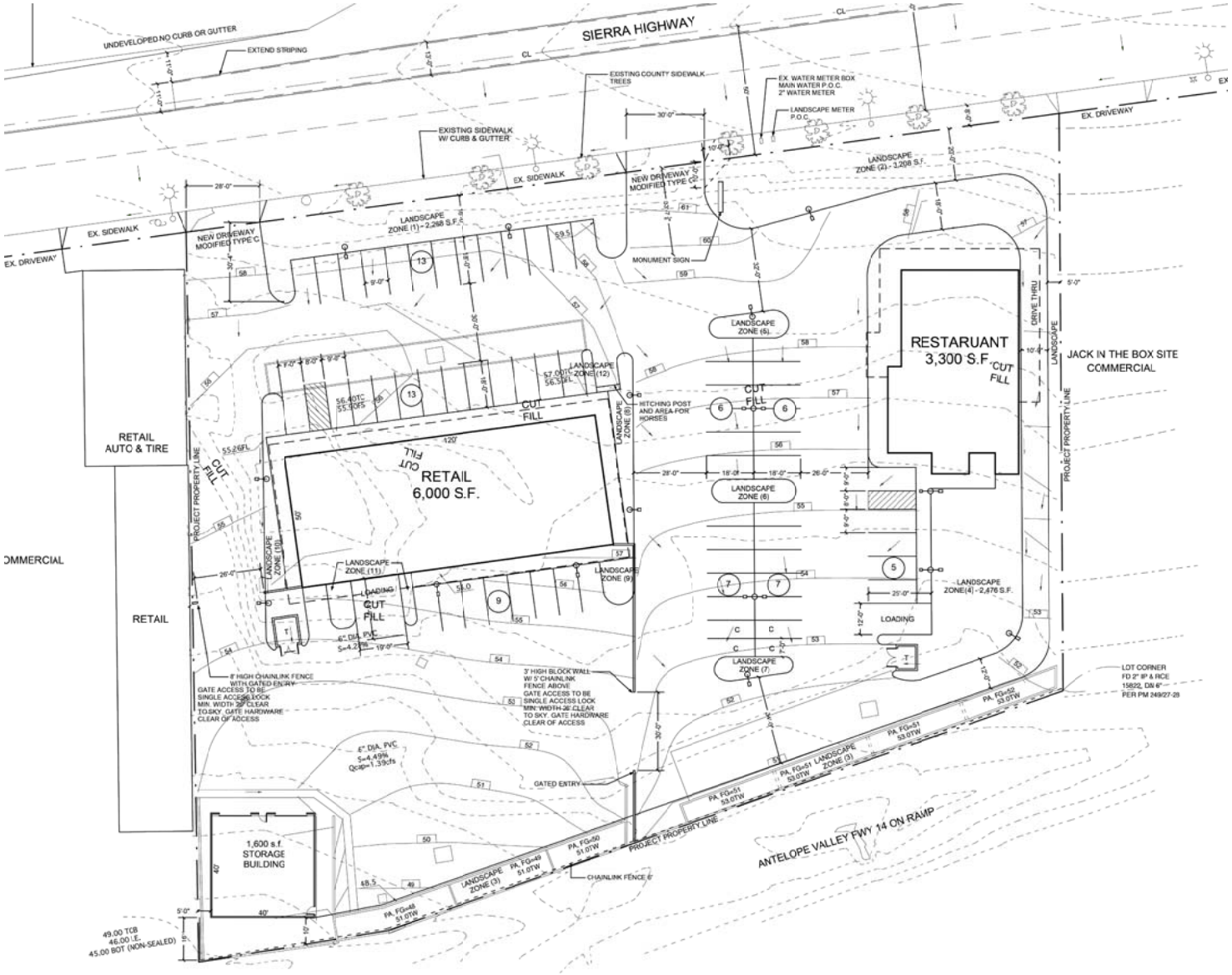

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SOURCE: FRIEDMAN ARCHITECTS & CONTRACTORS

FIGURE 2-2
SITE PLAN

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2.3 Project Parking

Based on the site plan information data sheet provided by the project applicant, a total of 56 parking spaces is required by County Code for the proposed project. As noted previously, the proposed project is currently being planned to provide a total 64 parking spaces via interconnected surface parking areas. Thus, the project's parking supply exceeds that required by County of Los Angeles Code parking requirements.

3.0 SITE ACCESS AND CIRCULATION

3.1 Vehicular Site Access

3.1.1 *Existing Vehicular Site Access*

As shown in *Figure 2-1*, the existing project site is currently vacant. Existing curb, gutter, sidewalk and street lighting is presently provided adjacent to the project site along Sierra Highway (i.e., along the northerly property frontage), however, no formal driveways (i.e., curb cuts) currently exist for access to and from the site.

3.1.2 *Proposed Project Vehicular Site Access*

The planned site access scheme for the proposed Acton project is displayed in *Figure 2-2*. Vehicular access to the proposed project will be provided via two driveways located along the south side of Sierra Highway (i.e., along the northerly property frontage). Vehicular circulation through the project site will be accommodated via two-way drive aisles that will extend between the project site driveways and the surface parking areas. Brief descriptions of the planned project site driveways are provided in the following paragraphs.

- *Westerly Project Site Driveway*

  The westerly project site driveway will be located at the northwest corner of the project site (i.e., along the northerly property frontage). Due to the existing termination of the two-way left-turn lane in the middle of Sierra Highway just east of this proposed driveway, a roadway restriping (i.e., a westerly extension of the two-way left-turn lane) has previously been reviewed and approved by the County. Refer to Section 3.1.3 below for a detailed discussion of this approved striping modification. Section 3.1.3 also contains a summary of the supplemental manual peak hour driveway turning movement counts that were conducted at existing driveways located along the north side of Sierra Highway in the project vicinity. The westerly project site driveway will be constructed to County of Los Angeles design standards.

- *Easterly Project Site Driveway*

  The easterly project site driveway will be located near the middle of the project site (i.e., along the northerly property frontage). Refer to Section 3.1.3 below for a detailed discussion of this recommended striping modification as well as for a summary of the supplemental driveway traffic counts that were conducted at existing driveways located along the north side of Sierra Highway as part of this review. The easterly project site driveway will be constructed to County of Los Angeles design standards.

3.1.3 *Proposed Sierra Highway Two-Way Left-Turn Lane Modification*

As shown in *Figure 2-1*, a total of three existing driveways are located along the north side of Sierra Highway in the immediate vicinity of the project site boundary. From west to east, these north side driveways comprise the following: 1) Driveway No. 1 – this driveway serves the existing Sierra View Apartments complex (i.e., a multi-building development providing condominium-style units consisting of one and two-bedroom units) which is located approximately 95 feet to the east (i.e., as measured from centerline of driveway to centerline of driveway) of the proposed project's westerly driveway, 2) Driveway No. 2 - this driveway is located immediately east of and adjacent to the existing Sierra View Apartments driveway (i.e., which is gated internal to the site and serves a commercial site) and located approximately 45 feet west of the proposed project's easterly driveway, and 3) Driveway No. 3 – this is the westerly driveway of an existing commercial center located on the north side of Sierra Highway, which comprises the 76 gas station and a two-story commercial retail building, and is located approximately 195 feet east of the proposed project's easterly driveway. Driveway No. 3 is also located nearly directly across from the existing Jack-in-the-Box fast-food restaurant driveway located on the south side of Sierra Highway immediately to the east of the project site.

Due to the proximity of the proposed project driveways to the above referenced existing driveways located along the north side of Sierra Highway, supplemental weekday AM and PM peak hour driveway turning movement counts were conducted. In order to identify potential vehicular conflicts within the two-way left-turn lane along Sierra Highway, these counts were conducted to identify the specific weekday AM and PM peak hour volumes of inbound and outbound left-turns and right-turns. Based on the peak hour driveway traffic counts conducted at these north side Sierra Highway driveways as shown in ***Figure 3-1***, no substantial vehicular conflicts are anticipated at either project driveway since the peak hour traffic volumes at Driveway Nos. 1 and 2 are extremely low (i.e., less than four vehicles for any single movement).

A copy of the previously approved plan for the modification to the existing two-way left-turn lane on Sierra Highway, which includes extending the lane westerly from its current terminus, is contained in ***Appendix A*** (refer to ***Appendix Figure A-1***). Based on preliminary input from Department of Public Works staff, the modification would need to be completed prior to the issuance of the Certificate of Occupancy.

MAP SOURCE: GOOGLE EARTH

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XX(XX) = WEEKDAY AM(PM) PEAK HOUR DRIVEWAY VOLUMES

FIGURE 3-1
EXISTING SIERRA HIGHWAY PEAK HOUR DRIVEWAY COUNTS
(NORTH SIDE DRIVEWAYS)

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3.1.4 *Vehicular Site Access Recommendations*

The following traffic management measures are recommended to facilitate access to and from the planned project site:

- Install appropriate pavement markings (i.e., stop bar with STOP legend) on the project drive aisles just south of the public sidewalk to ensure that motorists stop prior to the sidewalk along Sierra Highway before exiting the site.

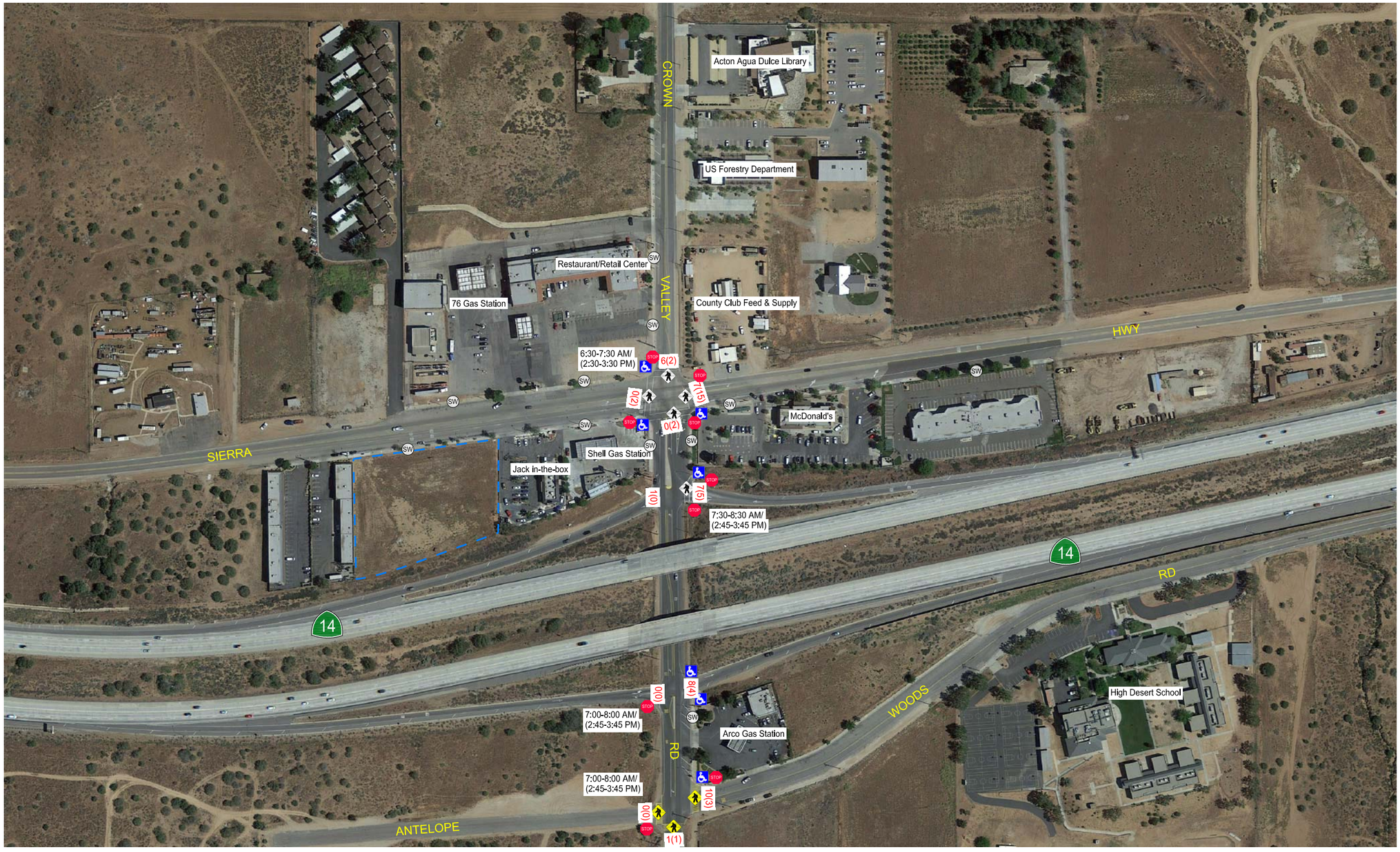
- It is recommended that the previously approved extension of the two-way left-turn lane on Sierra Highway be constructed to better accommodate exiting left-turn movements from the project site's westerly driveway.

- Maintain low height landscaping (i.e., 36 inches or less) along the north side of the project site so as to not impede sight distance for vehicles exiting the site and approaching vehicles on Sierra Highway.

3.2 Pedestrian Access

The Acton project is located along the Sierra Highway corridor and in close proximity to other commercial and public uses located near the Crown Valley Road intersection. Existing curb, gutter, sidewalk and street lighting is presently provided adjacent to the project site along Sierra Highway (i.e., along the northerly property frontage), as well as along the roadway adjacent to some of the other commercial developments in the area. Additionally, parallel-bar style pedestrian crosswalks with a width of approximately 13 feet are provided at the nearby Crown Valley Road/Sierra Highway intersection. However, it is noted that sidewalks and improved curb/gutter are discontinuous within the project study area (e.g., to the west of the adjacent commercial development just west of the project site, along the west side of Crown Valley Road [underneath the State Route 14 (SR-14) Freeway], etc.). It is important to note that full curb and gutter, sidewalk, and Americans With Disabilities Act (ADA) handicap ramp improvements have recently been constructed along the east side of Crown Valley Road in the vicinity of the SR-14 Freeway (i.e., between the Sierra Highway and Antelope Woods Road intersections). The locations of pedestrian amenities (e.g., sidewalk, improved curb/gutter, intersection corner ADA handicap ramps, etc.) and key destinations with the project vicinity are highlighted in an aerial photograph presented in ***Figure 3-2***.

The specific pedestrian peak hour crossing volumes in the area are presented in detail in ***Figure 3-3***. As illustrated, the majority of pedestrians utilize the east side sidewalk when traversing along Crown Valley Road between Antelope Woods Road on the south to Sierra Highway on the north. In addition, the majority of pedestrian crossings at the Crown Valley Road/Sierra Highway intersection occur across the east leg and north leg of the intersection. No pedestrians were observed to cross the south leg of the intersection during the weekday AM peak hour and only two pedestrians were observed to cross the south leg of the intersection during the weekday PM peak hour. This infers that a large pedestrian draw between land uses located on the south side of Sierra Highway across



MAP SOURCE: GOOGLE EARTH

PROJECT SITE

STOP SIGN

ADA

CROSSWALK

CROSSWALK YELLOW

SIDEWALK & IMPROVED CURB/GUTTER

XX(XX) = AM/PM PEAK HOUR PEDESTRIAN CROSSING VOLUMES

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LINSCOTT, LAW & GREENSPAN, engineers

FIGURE 3-2
LOCATIONS OF PEDESTRIAN AMENITIES, DESTINATIONS, AND CROSSING VOLUMES

ACTON PROJECT

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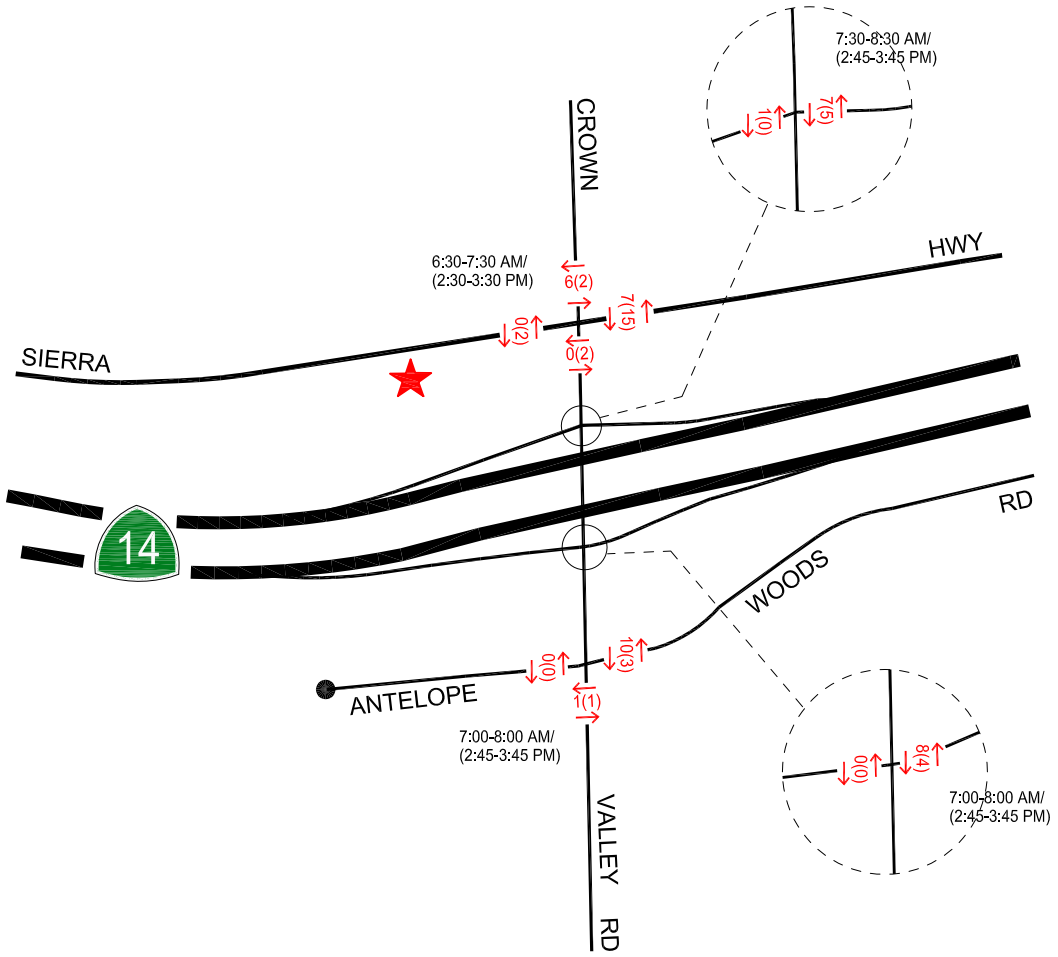

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PROJECT SITE

XX(XX) = AM/PM PEAK HOUR

FIGURE 3-3
EXISTING PEDESTRIAN PEAK HOUR CROSSING VOLUMES

ACTON PROJECT

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Crown Valley Road (i.e., land uses located east and west of Crown Valley Road) does not exist. As a Jack-in-the-Box restaurant currently exists just east of the proposed project site (i.e., west of Crown Valley Road), the pedestrian patterns after the proposed development is constructed are not anticipated to drastically change. In addition, the pedestrian volumes/patterns attributable to nearby schools and public/institutional uses are not anticipated to drastically change given that a sidewalk along the east side of Crown Valley Road now exists and ADA ramps have been constructed. The pedestrian counts also likely reflect the existing draw between the High Desert Middles School (south of SR-14 Freeway) and the Agua Dulce Library, north of Sierra Highway and east of Crown Valley Road.

3.3 Bicycle Access

Bicycle access to the project site is facilitated by the Los Angeles County bicycle roadway network[3] Existing or proposed bicycle facilities (e.g., Class I Bicycle Path, Class II Bicycle Lanes, Class III Bicycle Routes, Proposed Bicycle Routes, etc.) in the County of Los Angeles Bicycle Master Plan (March 2012) are located in the vicinity of the project site. The location of the Los Angeles County existing and proposed bicycle network near the project site and in the surrounding area is shown in ***Figure 3-4***. Use of bicycles as a transportation mode to and from the project site should be encouraged by the provision of ample and safe parking.

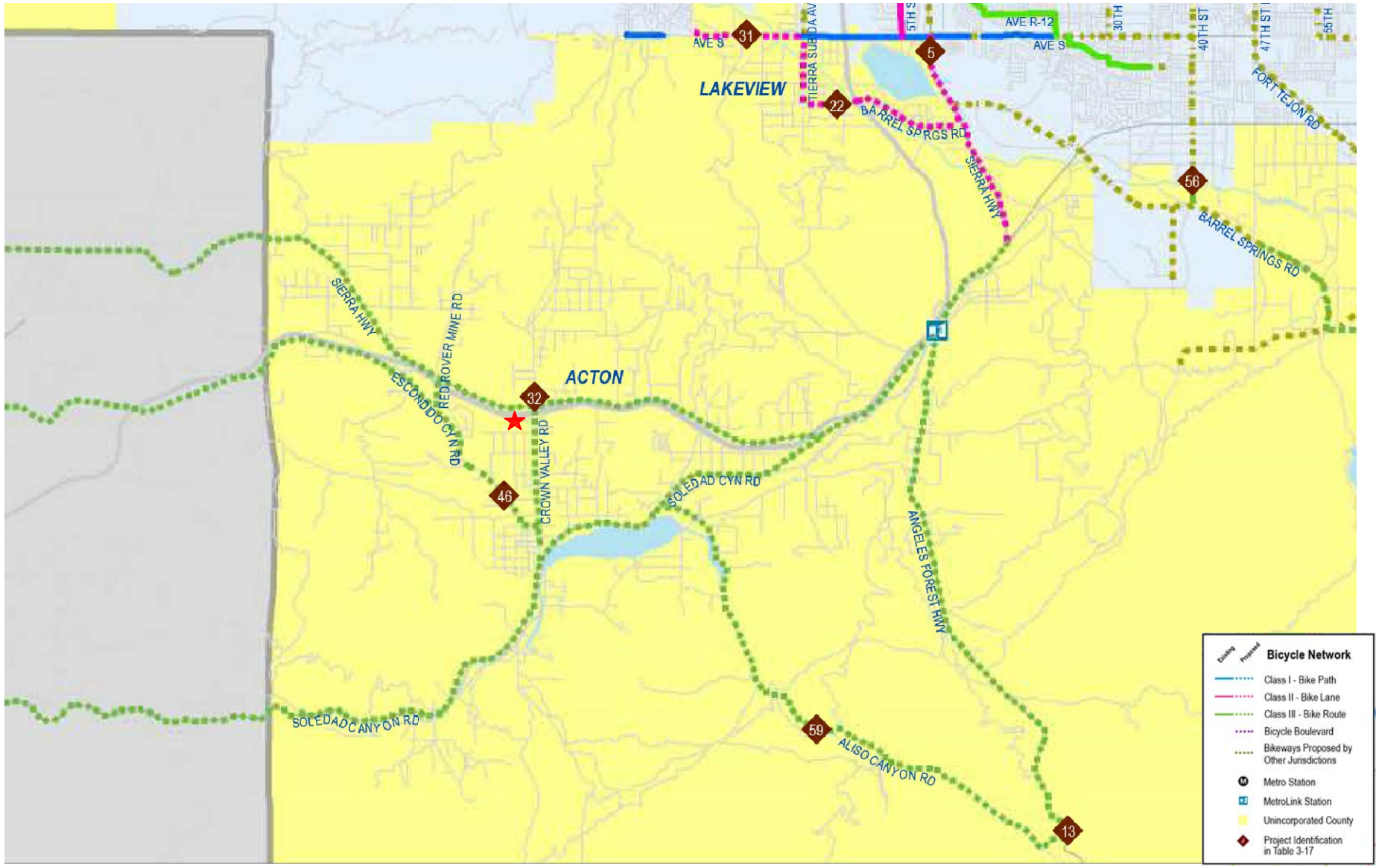
3.4 Drive-Through Service Window Queuing Analysis

In order to determine a very conservative forecast of vehicle queuing associated with the Primo Burgers chain, typical Raising Cane's drive-through service lane operations and vehicle queuing observations were previously conducted at three existing Raising Cane's restaurants. The observations were conducted as part of an assessment prepared for another Raising Cane's restaurant approved in the City of Ontario (currently under construction).[4] Queuing observations were collected on a typical mid-week day and a typical weekend day (i.e., Saturday) at the following three locations:

- 2249 N. Tustin Street, Orange, CA 92865
- 26801 Aliso Creek Road, Aliso Viejo, CA 92656
- 23971 El Toro Road, Laguna Hills, CA 92653

Observations were recorded at one-minute intervals during the hours of 11:00 AM to 2:00 PM and 4:00 PM to 7:00 PM, which correspond to the peak lunch period and peak dinner period, respectively. Evaluation of the data indicates that on average during the weekday peak period, an average queue of four (4) vehicles in the drive-through lane can be expected, with an 85th percentile

[3] *California Manual on Uniform Traffic Control Devices (MUTCD),* State of California, California State Transportation Agency, Department of Transportation, 2014 Edition Revision 3 (March 9, 2018).
[4] "Queuing Assessment for the Proposed Raising Cane's with Drive-Through, Ontario, California", prepared by LLG Engineers, April 21, 2017.



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MAP SOURCE: COUNTY OF LOS ANGELES BICYCLE MASTER PLAN MARCH 2012

PROJECT SITE

FIGURE 3-4
EXISTING AND PROPOSED BICYCLE NETWORK

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queue of approximately eight (8) vehicles, and a 95th percentile queue of approximately 10 vehicles. Similarly, the evaluation of the data indicates that on average during the weekend peak period, an average queue of four (4) vehicles in the drive-through lane can be expected, with an 85th percentile queue of approximately eight (8) vehicles, and a 95th percentile queue of approximately 12 vehicles. It should be noted that the 85th percentile criteria is typically recognized as the design standard utilized in the traffic engineering industry.

As mentioned previously, the proposed drive-through service lane is planned to provide approximately 240 feet of storage length, which will accommodate a queue of approximately 11 vehicles without encroaching into the drive aisle which motorists will utilize to access the drive-through lane. Based on the queuing observations conducted at existing fast-food restaurants, the proposed project's drive-through service lane is forecast to not only accommodate the 85th percentile design queue, but also the 95th percentile queue lengths. Therefore, the expected queues can be accommodated without interfering with internal circulation or causing congestion along the drive aisles. While no detailed queuing studies are available for Primo Burgers based on information provided by the Applicant, significantly less vehicle queuing at these establishments is expected when compared to the very popular Raising Cane's establishments. For reference purposes, a copy of the *Queuing Assessment for the Proposed Raising Cane's with Drive-Through, Ontario, California*, prepared by LLG Engineers, is contained in ***Appendix B***.

4.0 EXISTING STREET SYSTEM

4.1 Regional Highway System

Regional access to the project site is provided by State Route 14 (SR-14) Freeway, as shown in *Figure 1-1*. A brief description of SR-14 Freeway is provided in the following paragraph.

SR-14 (Antelope Valley) Freeway is an east-west oriented regional freeway in the immediate project area and serves as a connection between Los Angeles and Mojave. Two mixed-flow and one High Occupancy Vehicle (HOV) mainline freeway lanes are provided during the respective peak hours (i.e., west/southbound in the morning peak period and east/northbound during the afternoon peak period). Outside of the peak hours, three mixed-flow travel lanes are provided. Eastbound (northbound) and westbound (southbound) on and off-ramps are provided at Crown Valley Road.

4.2 Local Street System

Immediate access to the project site is via Sierra Highway. The following four study intersections were selected in consultation with LACPW staff for analysis of potential impacts related to the proposed project:

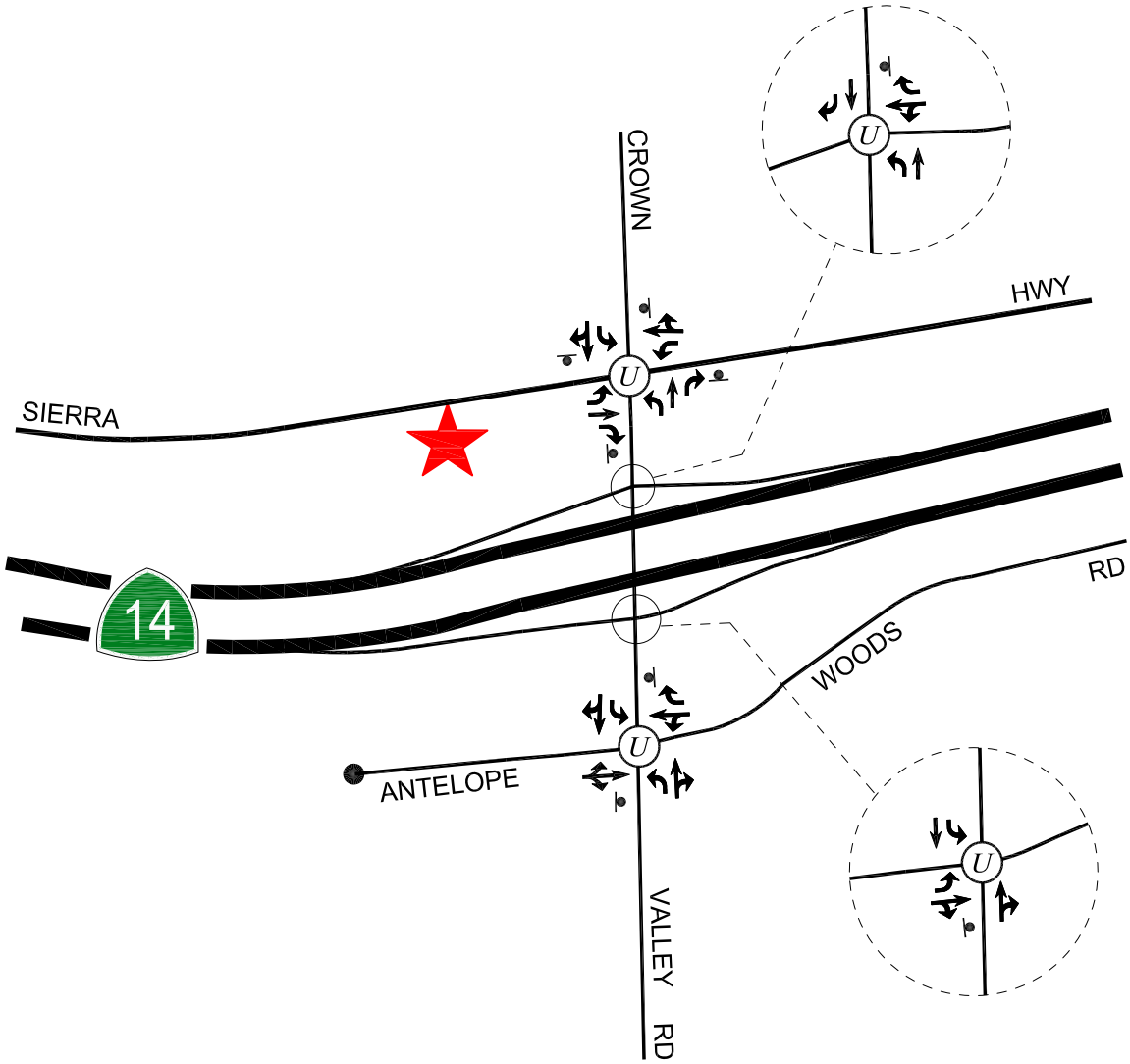
1. Crown Valley Road/Sierra Highway
2. Crown Valley Road/SR-14 Southbound Ramps
3. Crown Valley Road/SR-14 Northbound Ramps
4. Crown Valley Road/Antelope Woods Road

The study intersections selected for analysis in the traffic study also are noted in *Figure 1-1*. All of the existing study intersections are presently stop-sign controlled. The existing roadway configurations and intersection controls at the study intersections are displayed in ***Figure 4-1***.

4.3 Roadway Classifications

Los Angeles County utilizes the roadway categories recognized by regional, state and federal transportation agencies. There are four categories in the roadway hierarchy, ranging from freeways with the highest capacity to two-lane undivided roadways with the lowest capacity. The roadway categories are summarized as follows:

- *Freeways* are limited-access and high speed travel ways included in the state and federal highway systems. Their purpose is to carry regional through-traffic. Access is provided by interchanges with typical spacing of one mile or greater. No local access is provided to adjacent land uses.



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PROJECT SITE

UNSIGNALIZED INTERSECTION

STOP SIGN

FIGURE 4-1
EXISTING LANE CONFIGURATIONS

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- *Arterial* roadways are major streets that primarily serve through-traffic and provide access to abutting properties as a secondary function. Arterials are generally designed with two to six travel lanes and their major intersections are signalized. This roadway type is divided into two categories: principal and minor arterials. Principal arterials are typically four-or-more lane roadways and serve both local and regional through-traffic. Minor arterials are typically two-to-four lane streets that service local and commute traffic.

- *Collector* roadways are streets that provide access and traffic circulation within residential and non-residential (e.g., commercial and industrial) areas. Collector roadways connect local streets to arterials and are typically designed with two through travel lanes (i.e., one through travel lane in each direction) that may accommodate on-street parking. They may also provide access to abutting properties.

- *Local* roadways distribute traffic within a neighborhood, or similar adjacent neighborhoods, and are not intended for use as a through-street or a link between higher capacity facilities such as collector or arterial roadways. Local streets are fronted by residential uses and do not typically serve commercial uses.

4.4 Roadway Descriptions

A review of the important roadways in the project site vicinity and study area are summarized in ***Table 4-1***. As indicated in *Table 4-1*, the important roadways within the project study area were reviewed in terms of the number of lanes provided, posted speed limits, etc. Additionally, the roadway classifications also are presented in *Table 4-1*.

4.5 Existing Transit Services

Public bus and rail transit service is provided within the Acton project study area. Public bus and rail transit service is currently provided by the County of Los Angeles (LAC Shuttle) and Metrolink, respectively. The LAC Shuttle provides service along both Crown Valley Road and Sierra Highway in the project vicinity. Metrolink also provides service with their Antelope Valley Line. A summary of the existing transit service, including the transit route, destinations, and peak hour headways is presented in ***Table 4-2***. The existing public transit routes in the Acton project site vicinity are illustrated in ***Figure 4-2***.

Table 4-1
EXISTING ROADWAY DESCRIPTIONS

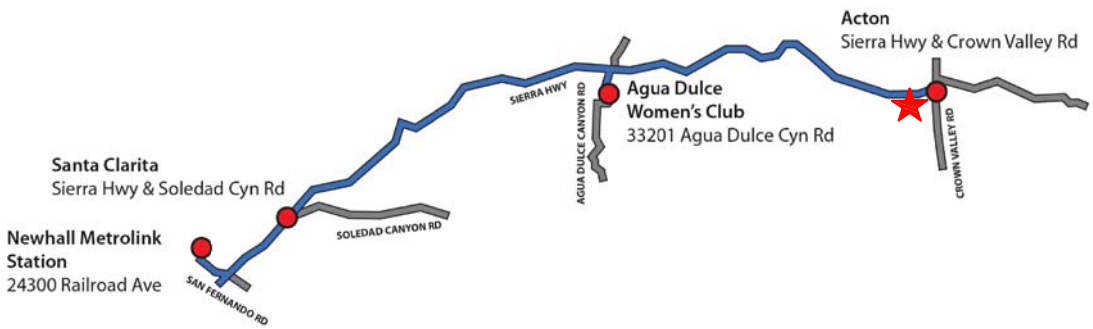
Roadway	Classification [1]	Travel Lanes		Median Types [4]	Speed Limit
		Direction [2]	No. Lanes [3]		
Crown Valley Road					
-North of Sierra Hwy	Limited Secondary Highway	NB-SB	2	N/A	45
-South of Sierra Hwy	Secondary Highway	NB-SB	2	RMI - N/A	50
Sierra Highway	Major Highway	EB-WB	2	N/A	55
Antelope Woods Road	Local Street	EB-WB	2	N/A	25

Notes:
[1] Roadway classifications obtained from Los Angeles County Highway Plan, adopted May 2014.
[2] Direction of roadways in the project area: NB-SB = northbound and southbound; and EB-WB = eastbound and westbound.
[3] Number of lanes in both directions on the roadway.
[4] Median type of the road: RMI = Raised Median Island; 2WLT = 2-Way Left-Turn Lane; and N/A = Not Applicable.

Table 4-2
EXISTING TRANSIT ROUTES [1]

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES/TRAINS DURING PEAK HOUR		
			DIR	AM	PM
LAC Acton-Agua Dulce	Newhall Metrolink Station to Acton via Santa Clarita and Agua Dulce	Crown Valley Road, Sierra Highway	EB WB	1 0	0 1
Metrolink - Antelope Valley	Lancaster to Union Station via Palmdale, Acton, Santa Clarita, Newhall, Sylmar-San Fernando, Sun Valley, Burbank and Glendale	Vincent Grade - Acton	NB SB	1 1	1 1
TOTAL				**3**	**3**

[1] Sources: County of Los Angeles (LAC Shuttle) and Metrolink websites, 2019.



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MAP SOURCE: LOS ANGELES COUNTY OF PUBLIC WORKS, METROLINK WEBSITES 2019

PROJECT SITE

FIGURE 4-2
EXISTING TRANSIT ROUTES

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ACTON PROJECT

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5.0 TRAFFIC COUNTS

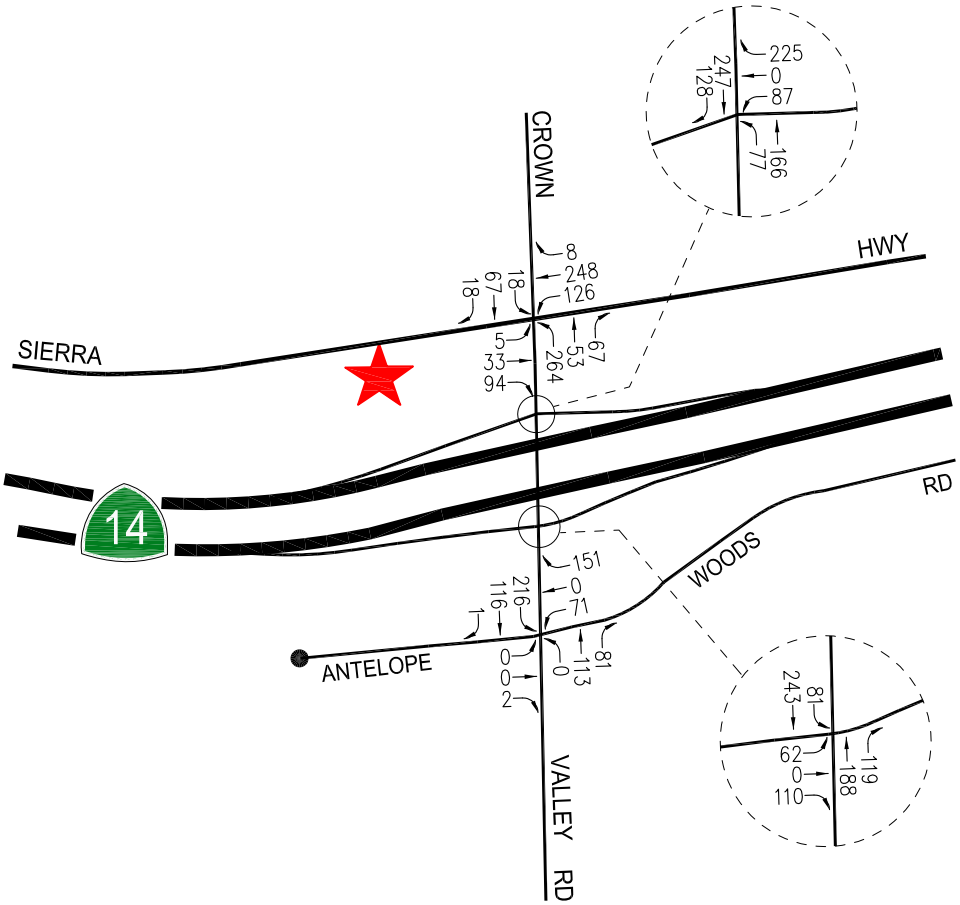
Manual counts of vehicular turning movements were conducted at each of the study intersections during the weekday morning (AM) and afternoon (PM) commute periods to determine the peak hour traffic volumes. The manual counts were conducted by an independent traffic count subconsultant (The Traffic Solution) at the study intersections from 7:00 to 9:00 AM to determine the weekday AM peak commute hour, and from 4:00 to 6:00 PM to determine the weekday PM peak commute hour. In conjunction with the manual turning movement vehicle counts, a count of bicycle and pedestrian volumes were also collected during the peak periods. It is noted that all of the traffic counts were conducted when local schools and businesses were in session prior to the Covid-19 pandemic. Traffic volumes at the study intersections show the typical peak periods between 7:00 to 9:00 AM and 4:00 to 6:00 PM generally associated with the region's weekday peak commute hours.

The weekday and weekend peak hour manual counts of vehicle movements at the study intersections are summarized in ***Table 5-1***. The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are shown in ***Figures 5-1*** and ***5-2***, respectively. Summary data worksheets of the manual traffic counts at the study intersections are contained in ***Appendix C***.

Table 5-1
EXISTING TRAFFIC VOLUMES [1]
WEEKDAY AM AND PM PEAK HOURS

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR		PM PEAK HOUR	
				BEGAN	VOLUME	BEGAN	VOLUME
1	Crown Valley Road/ Sierra Highway	11/05/2019	NB	7:00 AM	384	5:00 PM	369
			SB		103		118
			EB		132		646
			WB		382		152
2	Crown Valley Road/ SR-14 Freeway SB Ramps	11/05/2019	NB	7:00 AM	243	2:45 PM	327
			SB		375		328
			EB		0		0
			WB		312		198
3	Crown Valley Road/ SR-14 Freeway NB Ramps	11/05/2019	NB	7:15 AM	307	3:00 PM	319
			SB		324		266
			EB		172		266
			WB		0		0
4	Crown Valley Road/ Antelope Woods Road	11/05/2019	NB	7:15 AM	194	2:45 PM	236
			SB		333		279
			EB		2		1
			WB		222		71

[1] Counts conducted by The Traffic Solution.



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PROJECT SITE

FIGURE 5-1
EXISTING TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR
ACTON PROJECT

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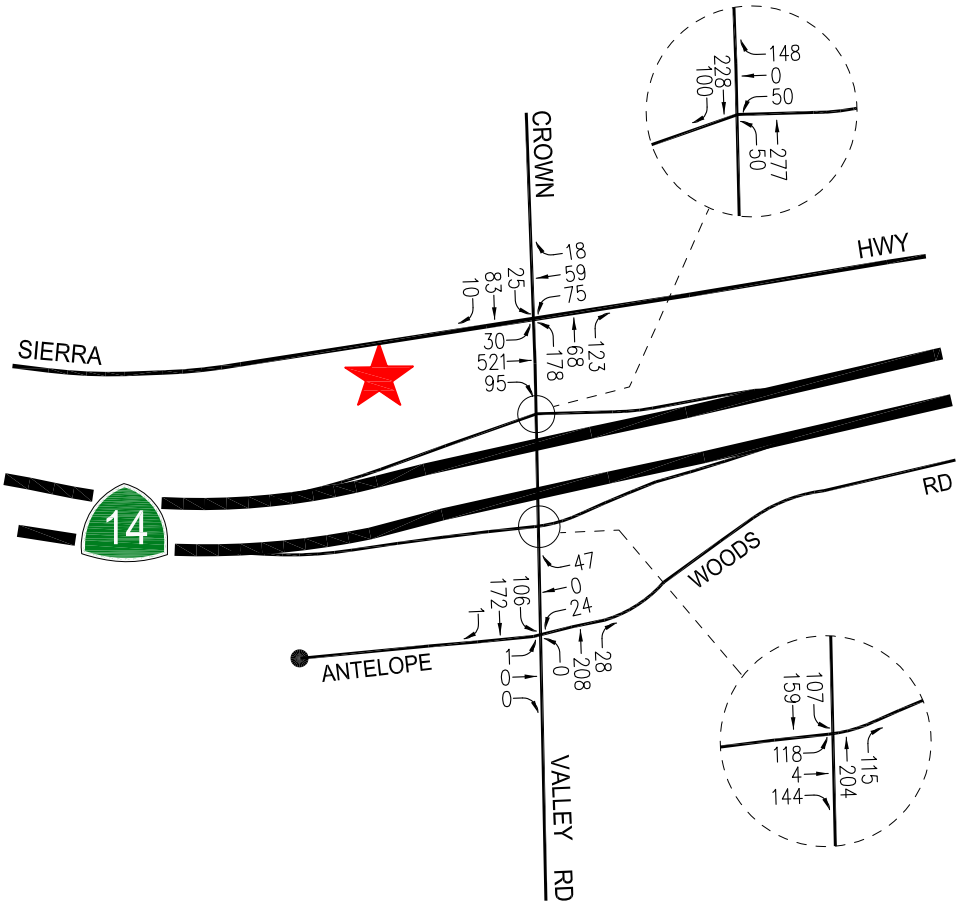

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PROJECT SITE

FIGURE 5-2
EXISTING TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
ACTON PROJECT

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6.0 CUMULATIVE DEVELOPMENT PROJECTS

The forecast of future pre-project conditions was prepared in accordance with procedures outlined in Section 15130 of the CEQA Guidelines. Specifically, the CEQA Guidelines provides two options for developing the future traffic volume forecast:

> "(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the [lead] agency, or
>
> (B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency."

Accordingly, the traffic analysis provides a conservative estimate of future pre-project traffic volumes as it incorporates the "A" option outlined in the CEQA Guidelines for purposes of developing the forecast.

A forecast of on-street traffic conditions prior to occupancy of the proposed project was prepared by incorporating the potential trips associated with other known development projects (related projects) in the area. It should be noted that a previously proposed Taco Bell restaurant with drive-through service project is included in the analysis even thought this project was not approved and it does not appear it could be approved in the future with the drive-through element. It was determined for this study that a conservative approach would be taken to include this potential project since some future development on this property is possible. With this information, the potential impact of the proposed project can be evaluated within the context of the cumulative impact of all ongoing and potential development in the study area. The related projects research was based on information on file at Los Angeles County Department of Regional Planning. The list of related projects in the project site area is presented in ***Table 6-1***. The location of the related projects are shown in ***Figure 6-1***.

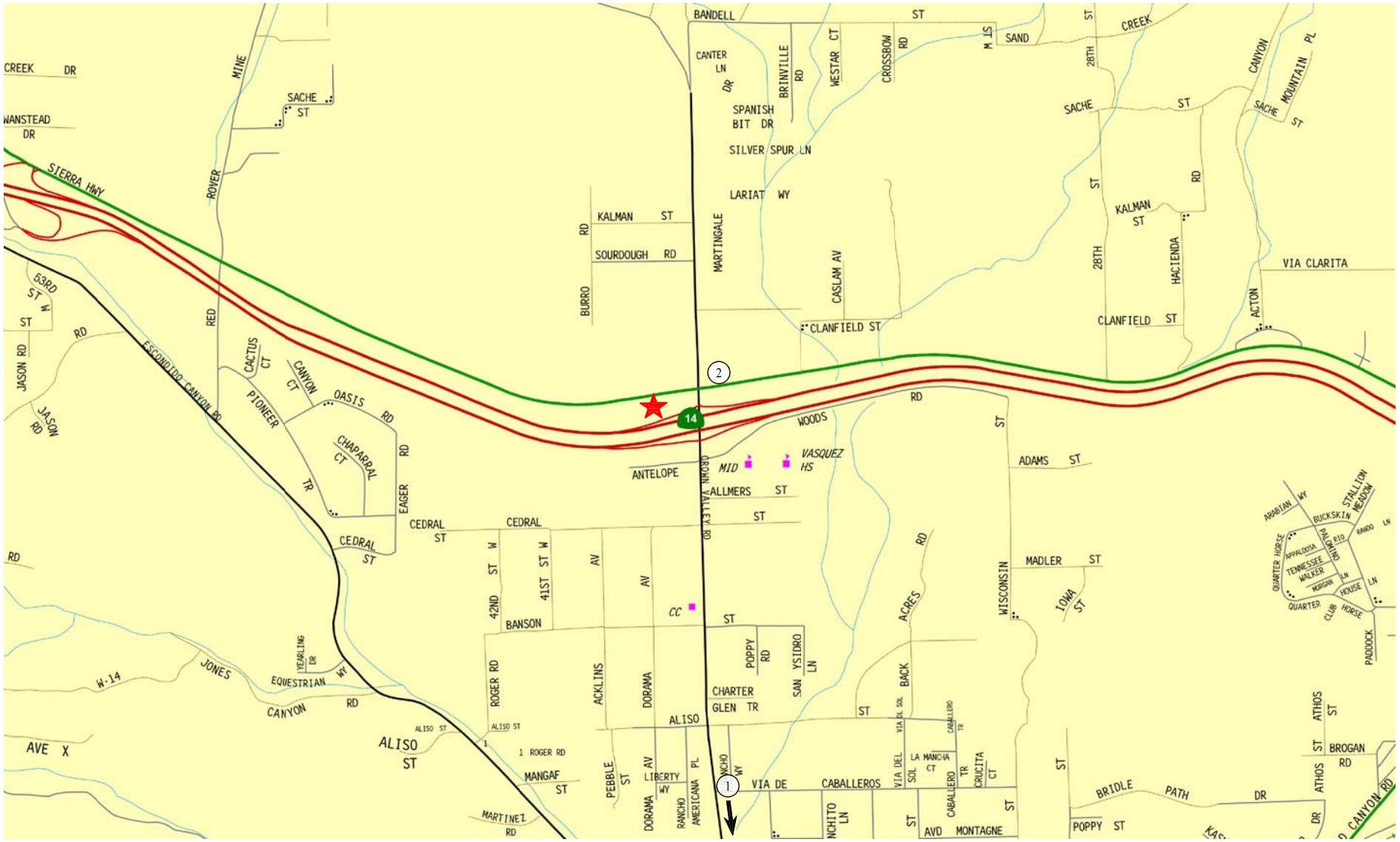
Traffic volumes expected to be generated by the related projects were calculated using rates provided in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*[5]. The related projects' respective traffic generation for the weekday AM and PM peak hours, as well as on a daily basis for a typical weekday, is summarized in *Table 6-1*. The distribution of the related projects

[5] Institute of Transportation Engineers *Trip Generation Manual*, 10th Edition, 2017, Washington, D.C.

Table 6-1
RELATED PROJECTS LIST AND TRIP GENERATION [1]

MAP NO.	PROJECT STATUS	PROJECT NAME/NUMBER ADDRESS/LOCATION	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			LAND-USE	SIZE			IN	OUT	TOTAL	IN	OUT	TOTAL
1	Proposed	32422 Crown Valley Road	Single-Family Residential	5 DU	[3]	47	1	3	4	3	2	5
2	Proposed	Taco Bell 3771 Sierra Highway	Restaurant W/Drive-thru	2,029 GSF	[4]	956	42	40	82	34	32	66
TOTAL						1,003	43	43	86	37	34	71

[1] Source: Los Angeles County of Regional Planning, except as noted below. The peak hour traffic volumes were forecast by applying trip rates as provided in the ITE "Trip Generation", 10th Edition, 2017.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 210 (Single-Family Detached Housing) trip generation average rates.
[4] ITE Land Use Code 934 (Fast-Food Restaurant with Drive-Through) trip generation average rates.



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MAP SOURCE: RAND MCNALLY & COMPANY

★ PROJECT SITE

FIGURE 6-1
LOCATION OF RELATED PROJECTS

LINSCOTT, LAW & GREENSPAN, engineers

ACTON PROJECT

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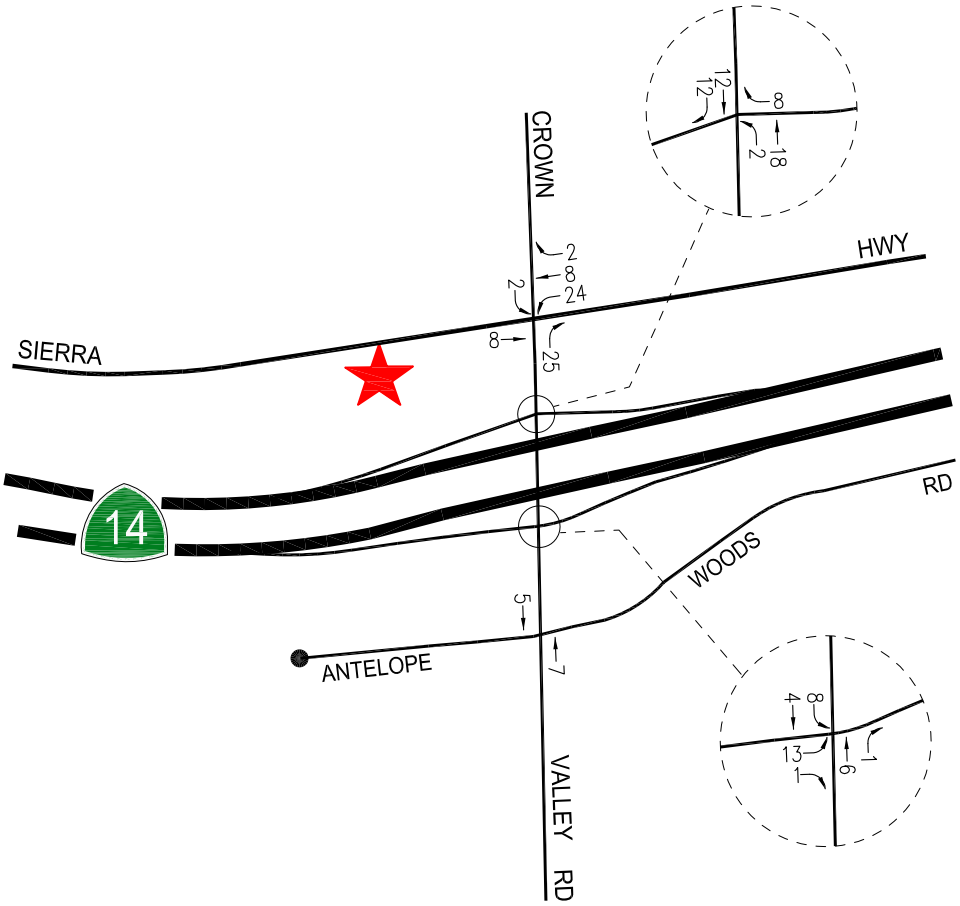
traffic volumes to the study intersections during the weekday AM and PM peak hours are displayed in ***Figures 6-2*** and ***6-3***, respectively.



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PROJECT SITE

FIGURE 6-2

RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

ACTON PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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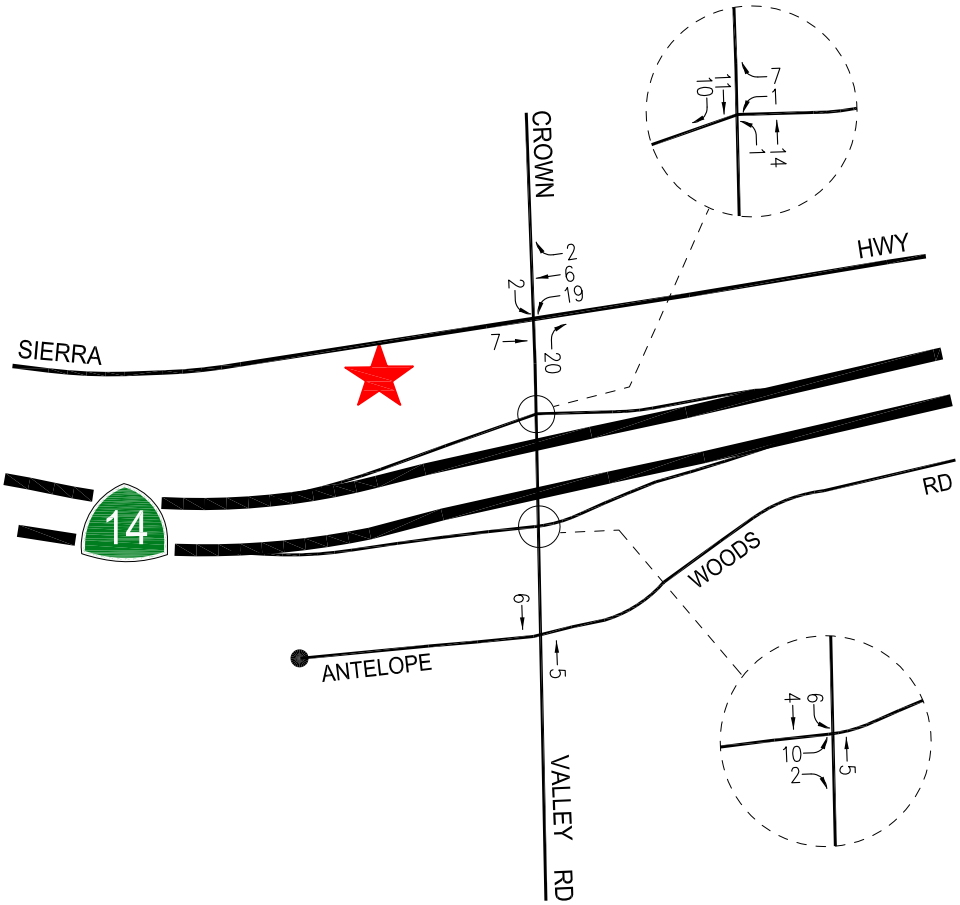

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PROJECT SITE

FIGURE 6-3

RELATED PROJECTS TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

ACTON PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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7.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the Acton project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic volumes on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound project traffic volumes. These origins and destinations are typically based on demographics and existing/anticipated travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and project traffic assignments developed, the impact of the proposed project is isolated by comparing operational (i.e., Levels of Service) conditions at the selected key intersections using existing and expected future traffic volumes without and with forecast project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated and the significance of the project's impacts identified.

7.1 Project Traffic Generation

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Traffic volumes to be generated by the proposed project were forecast for the weekday AM and PM peak hours, and over a 24-hour period. Generation rates provided in the ITE *Trip Generation Manual*, 10th Edition, were utilized to forecast project traffic for the proposed project fast-food restaurant land use component. In order to provide a conservative (i.e., higher) forecast of project-related trips, ITE *Trip Generation Manual,*[6] 9th Edition, generation rates were used to forecast project traffic for the proposed project retail land use component. The reasons for this approach include that ITE Land Use Code 826 (Specialty Retail Center) trip generation rates from the 9th Edition are higher than ITE Land Use Code 820 (Shopping Center) trip rates from the 10th Edition and Land Use Code 826 is not provided in the 10th Edition. The development of the project traffic generation forecast was determined in consultation with LACPW staff and confirmed.

In addition to the above project trip generation forecasts, a forecast was made of likely pass-by trips that could be anticipated at the site for the proposed project. Pass-by trips are intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are

[6] Institute of Transportation Engineers *Trip Generation Manual*, 9th Edition, 2012, Washington, D.C.

attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the site. The pass-by traffic forecast has been estimated based on existing traffic volumes at the study intersections and recommended practice in the ITE *Trip Generation Manual* and in Chapter 5 of the ITE *Trip Generation Handbook*[7]. While a 50 percent (50%) pass-by adjustment is common for restaurant uses such as the proposed project, only a 10 percent (10%) pass-by adjustment has been applied to the weekday AM and PM peak hour traffic volume forecasts, as well as to the daily traffic volume forecasts, in order to provide a very conservative forecast of potential project trip generation.

Please note that no internal capture trip adjustments have been applied to the retail and restaurant land use components in order to again provide a conservative forecast of project traffic volumes. Mixed-use and multi-use developments consisting of multiple complementary land uses (e.g., development projects with local community serving uses) have the potential to attract trips between the on-site land use components. Internal capture trips begin and end within the project site, thereby reducing the overall external trip generation to and from the site which would be expected to utilize the existing public street system (as compared to trip generation estimates assuming each land use component as an independent, free-standing site).

The trip generation forecast for the proposed project is summarized in ***Table 7-1***. As presented in *Table 7-1*, the proposed project is expected to generate 156 net new vehicle trips (79 inbound trips and 77 outbound trips) during the weekday AM peak hour. During the weekday PM peak hour, the proposed project is expected to generate 124 net new net new vehicle trips (65 inbound trips and 59 outbound trips). Over a 24-hour period, the proposed project is forecast to generate 1,638 daily trip ends during a typical weekday (819 inbound trips and 819 outbound trips).

7.2 Project Traffic Distribution and Assignment

Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- The site's proximity to major traffic corridors (i.e., Sierra Highway, Crown Valley Road, SR-14 Freeway, etc.);
- The location and spatial proximity of nearby commercial entities along major corridors such as Sierra Highway;
- Expected localized traffic flow patterns based on adjacent roadway channelization and presence of traffic control;
- Existing intersection traffic volumes;
- Existing site parcel access ingress/egress schemes;

[7] Institute of Transportation Engineers *Trip Generation Handbook*, 3rd Edition, 2014, Washington, D.C..

Table 7-1
PROJECT TRIP GENERATION FORECAST

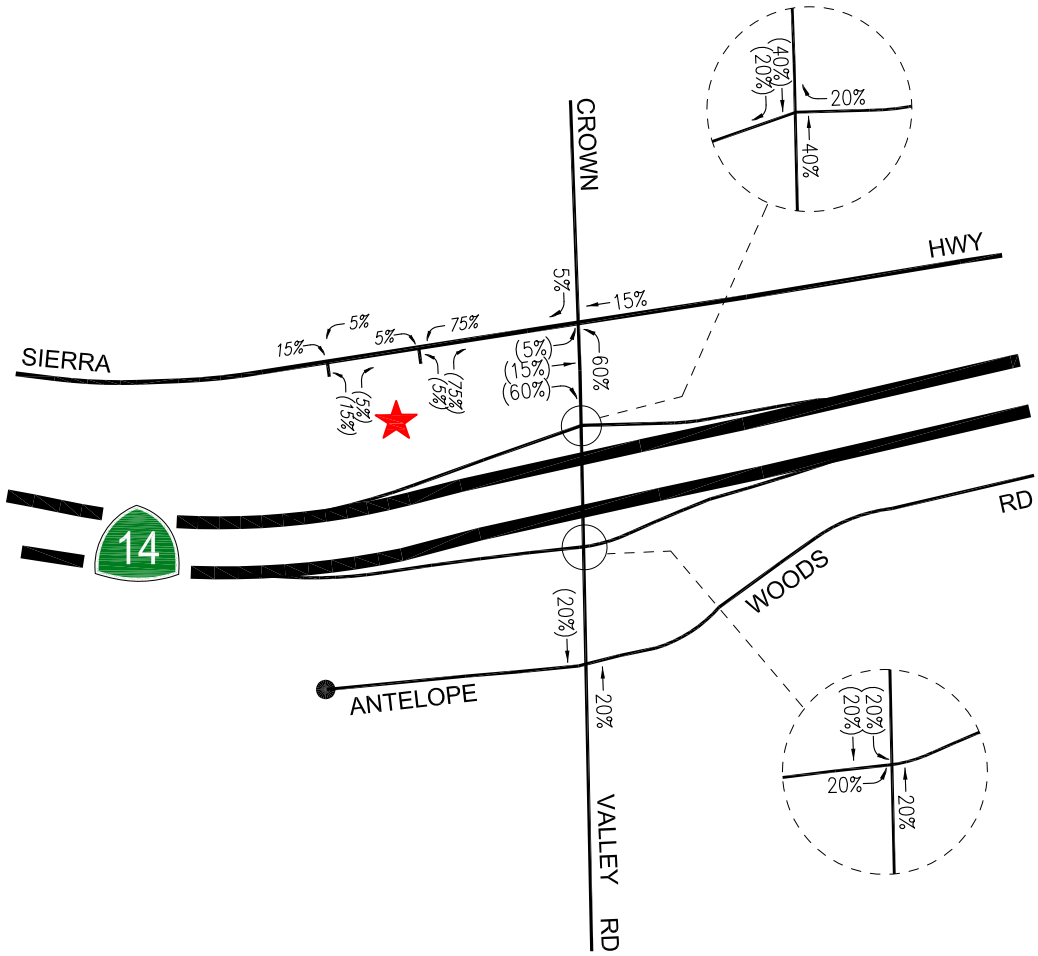
TRIP GENERATION RATES [1]									
	ITE LAND USE		WEEKDAY	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
ITE LAND USE CATEGORY	CODE	VARIABLE	DAILY	IN (%)	OUT (%)	TOTAL	IN (%)	OUT (%)	TOTAL
Specialty Retail Center	826	Per 1,000 SF	44.32	48%	52%	6.84	56%	44%	5.02
Fast-Food Restaurant with Drive-Through Window	934	Per 1,000 SF	470.95	51%	49%	40.19	52%	48%	32.67

PROJECT TRIP GENERATION FORECAST									
	ITE LAND USE		DAILY TRIP ENDS [2]	AM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
LAND USE	CODE	SIZE	VOLUMES	IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Project									
Specialty Retail Center [3]	826	6,000 GSF	266	20	21	41	17	13	30
- Less Pass-by (10%) [4]			(27)	(2)	(2)	(4)	(2)	(1)	(3)
Fast-Food Restaurant with Drive-Through [5]	934	3,300 GSF	1,554	68	65	133	56	52	108
- Less Pass-by (10%) [4]			(155)	(7)	(7)	(14)	(6)	(5)	(11)
TOTAL PROJECT TRIPS			***1,638***	***79***	***77***	***156***	***65***	***59***	***124***

[1] Sources: ITE "Trip Generation Manual", 9th Edition, 2012 and ITE "Trip Generation Manual", 10th Edition, 2017.
[2] Trips are one-way traffic movements, entering or leaving.
[3] ITE Land Use Code 826 (Specialty Retail Center) 9th Edition trip generation average rates are as follows:
Weekday Daily: 44.32 trips/1,000 SF of floor area
Weekday AM Peak Hour of Generator: 3.28 trips/1,000 SF of floor area
Weekday PM Peak Hourof Generator: 2.81 trips/1,000 SF of floor area
[4] Sources: ITE "Trip Generation Manual", 10th Edition, 2017 and ITE "Trip Generation Handbook", 3rd Edition, 2014. Pass-by trips are made as intermediate stops on the way from an origin to a primary destination without a route diversion. Pass-by trips are attracted from traffic passing the site on an adjacent street or roadway that offers direct access to the site.
[5] ITE Land Use Code 934 (Fast-Food Restaurant with Drive-Through Window) 10th Edition trip generation average rates are as follows:
Weekday Daily: 470.95 trips/1,000 SF of floor area
Weekday AM Peak Hour: 40.19 trips/1,000 SF of floor area
Weekday PM Peak Hour: 32.67 trips/1,000 SF of floor area

- Ingress/egress scheme planned for the proposed project;
- Nearby population and employment centers; and
- Input from LACPW staff.

The project traffic volume distribution percentages during weekday AM and PM peak hours at the study intersections are illustrated in ***Figure 7-1***. The forecast net new project traffic volumes at the study intersections for the weekday AM and PM peak hours are displayed in ***Figures 7-2*** and ***7-3***, respectively. The traffic volume assignments presented in *Figures 7-2* and *7-3* reflect the traffic distribution characteristics shown in *Figure 7-1* and the project traffic generation forecasts presented in *Table 7-1*.



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★ PROJECT SITE

XX = INBOUND PERCENTAGE

(XX) = OUTBOUND PERCENTAGE

FIGURE 7-1
PROJECT TRIP DISTRIBUTION

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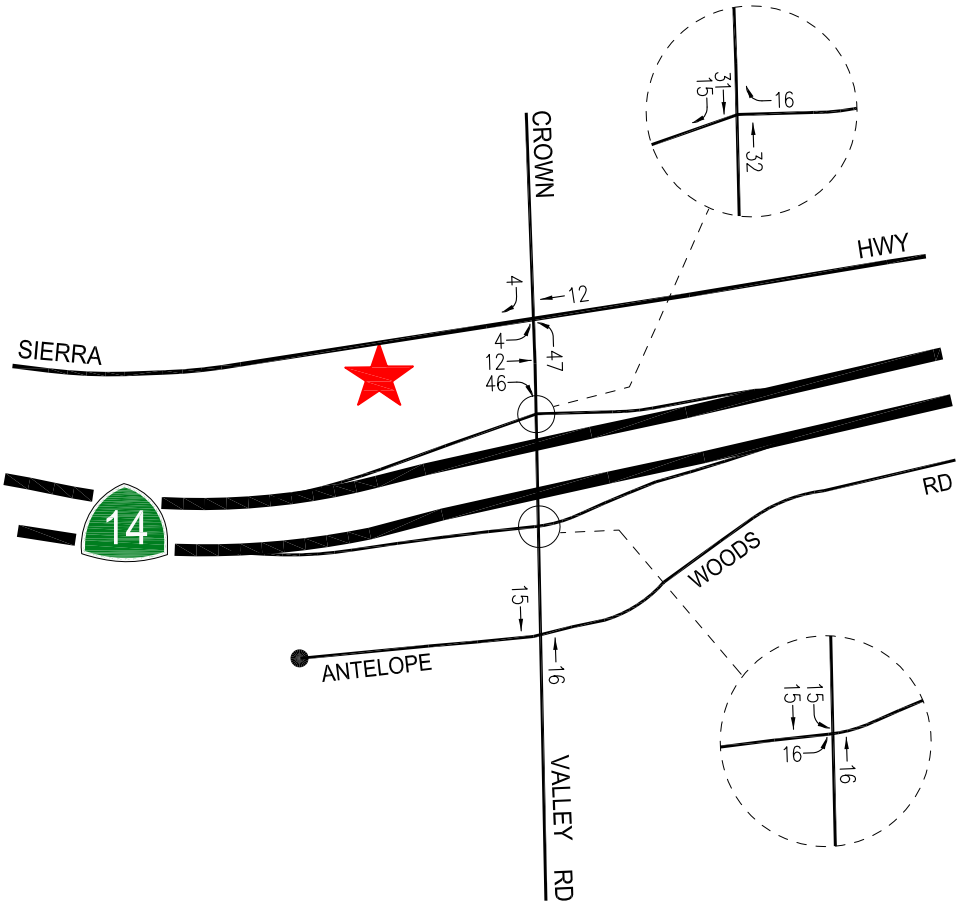

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PROJECT SITE

FIGURE 7-2
PROJECT TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR

ACTON PROJECT

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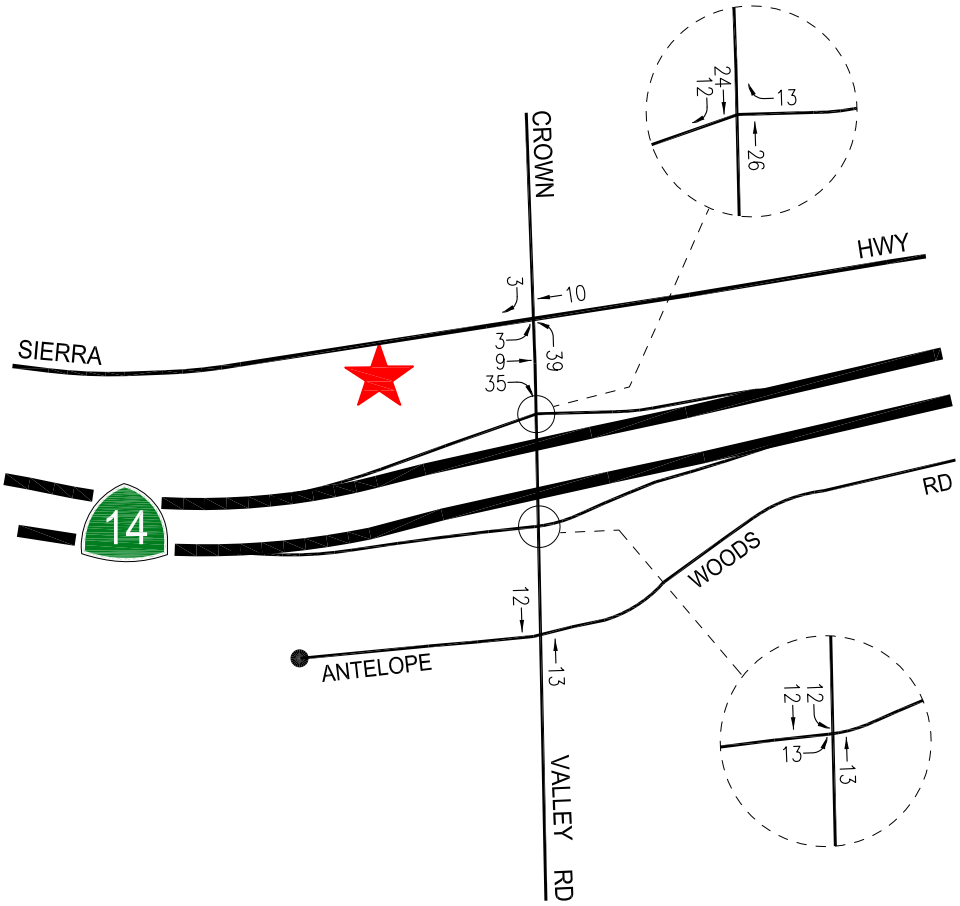

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PROJECT SITE

FIGURE 7-3
PROJECT TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
ACTON PROJECT

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8.0 PRIOR COUNTY OF LOS ANGELES TRAFFIC IMPACT ANALYSIS METHODOLOGY

The study intersections were evaluated using the Highway Capacity Manual (HCM) 6th Edition for unsignalized intersections and the Intersection Capacity Utilization (ICU) method of analysis which determines Volume-to-Capacity (*v/c*) ratios on a critical lane basis. The overall intersection delay and *v/c* ratio is subsequently assigned a Level of Service (LOS) value to describe intersection operations. Level of Service varies from LOS A (free flow) to LOS F (jammed condition). A description of the HCM and ICU methods and corresponding Level of Service is provided in ***Appendix D***.

The *Highway Capacity Manual* (HCM) methodology outlined in Chapter 19 for unsignalized/two-way stop-controlled (TWSC) intersections was utilized for the analysis of the unsignalized intersections. The TWSC methodology estimates the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns and determines the LOS for each constrained movement. It should be noted that LOS is not defined for the overall TWSC intersection because major-street movements with no delays typically result in a weighted average delay that is extremely low. Average control delay for any particular movement is a function of the capacity of the approach and the degree of saturation. The average control delay is measured in seconds per vehicle, and includes delay due to deceleration to a stop at the back of the queue from free-flow speed, move-up time within the queue, stopped delay at the front of the queue, and delay due to acceleration back to free-flow speed. As noted above, a description of the HCM method and corresponding Level of Service is also provided in *Appendix D*.

Linscott, Law, & Greenspan, Engineers (LLG) has created proprietary Excel-based software to properly assess traffic conditions for the analyzed study intersections. The LLG ICU software produces analysis results consistent with other available industry software including Traffix and Vistro. The ICU method of analysis determines Volume-to-Capacity (*v/c*) ratios on a critical lane basis. The overall intersection *v/c* ratio is subsequently assigned a Level of Service (LOS) value to describe intersection operations. Level of Service varies from LOS A (free flow) to LOS F (jammed condition). As noted above, a description of the ICU method and corresponding Level of Service is provided in *Appendix D*.

8.1 Prior County Intersection Impact Criteria and Thresholds

The relative impact of the added project traffic volumes to be generated by the proposed project during the weekday AM and PM peak hours was evaluated based on analysis of existing and future operating conditions at the study intersections, without and with the proposed project. The previously discussed capacity analysis procedures were utilized to evaluate the future *v/c* relationships and service level characteristics at each study intersection.

The significance of the potential impacts of project-generated traffic was identified using the traffic impact criteria set forth in the County of Los Angeles traffic study guidelines[8] According to the County's published traffic study guidelines, the impact is considered significant if the project-related increase in the *v/c* ratio equals or exceeds the thresholds presented in ***Table 8–1***.

Table 8-1 COUNTY OF LOS ANGELES PRIOR INTERSECTION IMPACT THRESHOLD CRITERIA		
Pre-Project *v/c*	**Level of Service**	**Project-Related Increase in *v/c***
> 0.701 - 0.800	C	equal to or greater than 0.040
> 0.801 - 0.900	D	equal to or greater than 0.020
>0.901	E or F	equal to or greater than 0.010

Pursuant to the County's prior *Traffic Impact Analysis Report Guidelines*, the ICU calculations utilize a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through, and right-turn lanes, and 2,880 vph for dual left-turn lanes. A clearance factor of 0.10 is also utilized in the calculations.

The County's Sliding Scale Method requires mitigation of project traffic impacts whenever traffic generated by the proposed development causes an increase of the analyzed intersection *v/c* ratio by an amount equal to or greater than the values shown in *Table 8-1*. Accordingly, a significant impact is defined as either degrading an intersection's LOS from an acceptable LOS (i.e., LOS D or better) to an unacceptable LOS (i.e., LOS E or F), and/or meeting the significant impact criteria set forth in *Table 8-1*.

8.2 Intersection Traffic Impact Analysis Scenarios

Traffic impacts at the study intersections were analyzed for the following conditions:

[a] Existing conditions.

[b] Existing with project conditions.

[c] Condition [b] with implementation of project mitigation measures, where necessary.

[d] Condition [a] with completion and occupancy of the related projects (i.e., future without project conditions).

[e] Condition [d] with completion and occupancy of the proposed project.

[f] Condition [e] with implementation of project mitigation measures, where necessary.

[8] *Traffic Impact Analysis Report Guidelines*, County of Los Angeles Department of Public Works, January 1, 1997.

9.0 TRANSPORTATION ANALYSIS

The traffic impact analysis prepared for the study intersections using the County's standard ICU methodology and application of the County of Los Angeles' prior significant traffic impact criteria is summarized in ***Table 9-1***. The ICU data worksheets for the analyzed intersections are contained in *Appendix D*.

While the County's prior guidelines did not require that unsignalized intersections be assessed using the HCM methodology, this supplemental assessment has been prepared for all study intersections and is summarized in ***Table 9-2***. The Synchro 11/HCM data worksheets for the analyzed intersections are also contained in *Appendix D*. It is important to note that this analysis is being provided for informational purposes as the County of Los Angeles did not and does not have established significance thresholds under this methodology.

9.1 Existing Conditions

9.1.1 *Existing Conditions*

As indicated in column [1] of *Table 9–1*, all four study intersections are presently operating at LOS B or better during the weekday AM and PM peak hours. As indicated in column [1] of *Table 9–2*, all four study intersections are presently operating at LOS C or better during the weekday AM and PM peak hours, employing the HCM methodology. The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 5–1* and *5–2*, respectively.

9.1.2 *Existing With Project Conditions*

As shown in column [2] of *Table 9–1,* application of the County's threshold criteria to the "Existing With Project" scenario indicates that the proposed project is not expected to create significant impacts at any of the four study intersections. Less than significant impacts are noted at all of the study intersections. Because there are no significant impacts, no traffic mitigation measures are required or recommended for the study intersections under the "Existing With Project" conditions. As indicated in column [2] of *Table 9–2*, all four study intersections are forecast to operate at LOS C or better during the weekday AM and PM peak hours, employing the HCM methodology, for the "Existing With Project" scenario. The existing with project traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in ***Figures 9–1*** and ***9–2***, respectively.

9.2 Future Conditions

9.2.1 *Future Cumulative With Project Conditions*

As shown in column [3] of *Table 9–1,* application of the City's threshold criteria to the "With Proposed Project and Related Projects" scenario indicates that the proposed project is not expected to contribute to a significant cumulative traffic impact at any of the four study intersections. Less than significant impacts are noted at all four study intersections. Because there are no significant impacts, no traffic mitigation measures are required or recommended for the study intersections. As

Table 9-1
SUMMARY OF VOLUME TO CAPACITY RATIOS
AND LEVELS OF SERVICE
WEEKDAY AM AND PM PEAK HOURS

			[1]		[2]				[3]			
NO.	INTERSECTION	PEAK HOUR	YEAR 2019 EXISTING V/C or DELAY	LOS [a]	YEAR 2019 EXISTING W/ PROPOSED PROJECT V/C or DELAY	LOS [a]	CHANGE V/C or DELAY [(2)-(1)]	SIGNIF. IMPACT [a],[b]	YEAR 2022 FUTURE W/ PROJECT & REL. PROJECTS V/C or DELAY	LOS [a]	CHANGE V/C or DELAY [(3)-(1)]	SIGNIF. IMPACT [a],[b]
1	Crown Valley Road/	AM	0.481	A	0.523	A	0.042	No	0.531	A	0.050	No
	Sierra Highway	PM	0.642	B	0.674	B	0.032	No	0.690	B	0.048	No
2	Crown Valley Road/	AM	0.443	A	0.473	A	0.030	No	0.486	A	0.043	No
	SR-14 Freeway SB Ramps	PM	0.366	A	0.390	A	0.024	No	0.403	A	0.037	No
3	Crown Valley Road/	AM	0.411	A	0.431	A	0.020	No	0.441	A	0.030	No
	SR-14 Freeway NB Ramps	PM	0.459	A	0.474	A	0.015	No	0.483	A	0.024	No
4	Crown Valley Road/	AM	0.451	A	0.461	A	0.010	No	0.465	A	0.014	No
	Antelope Woods Road	PM	0.344	A	0.352	A	0.008	No	0.355	A	0.011	No

[a] Level of Service (LOS) is based on the reported ICU value for signalized intersections and the delay value for unsignalized intersections.

[b] According to the County of Los Angeles Department of Public Works' *Traffic Impact Analysis Report Guidelines* , January 1, 1997, Page 6: an impact is considered significant if the project related increase in the volume-to-capacity ratio (v/c) equals or exceeds the thresholds shown below:

Level of Service	Pre-Project ICU	Project-Related Increase in V/C
C	> 0.710 - 0.800	equal to or greater than 0.040
D	> 0.810 - 0.900	equal to or greater than 0.020
E/F	> 0.910	equal to or greater than 0.010

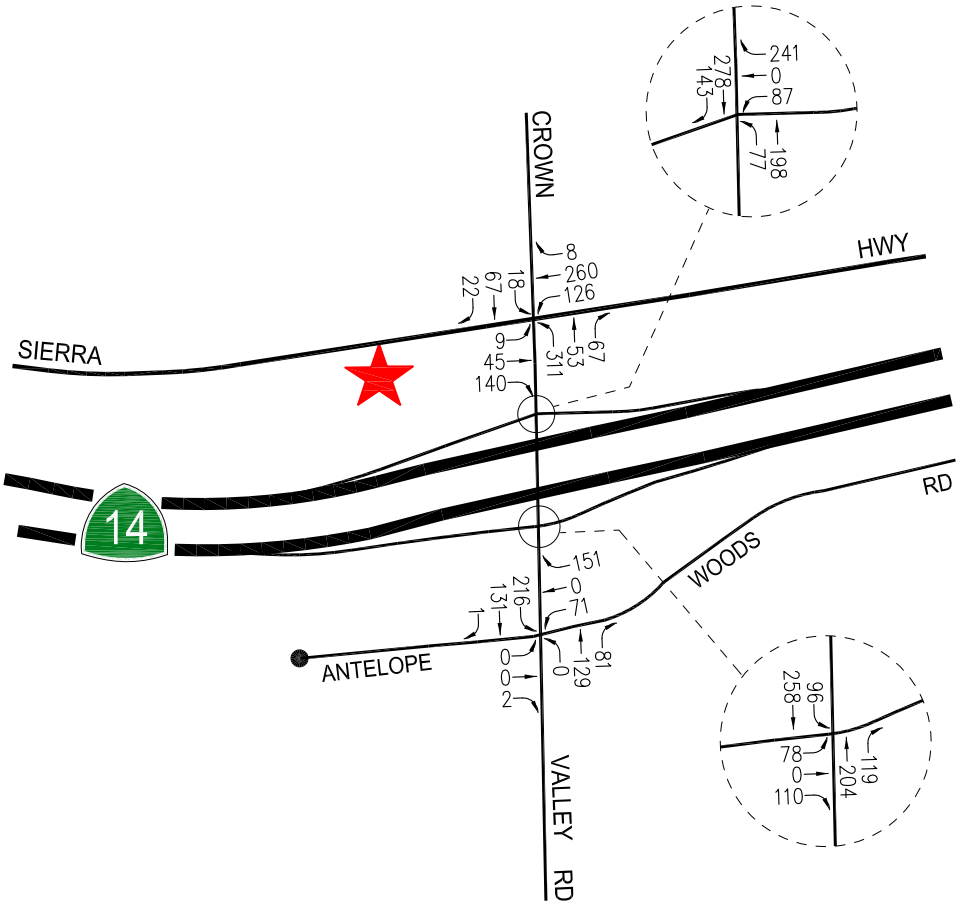
[c] Based on coordination with County of Los Angeles Department of Public Works - Traffic & Lighting Division staff, an impact is also considered significant if the pre-project condition is operating at LOS A or B, and the project causes the v/c ratio to increase to 0.75 or greater.

Table 9-2
SUMMARY OF INTERSECTION DELAYS
AND LEVELS OF SERVICE [a]

NO.	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	[1] YEAR 2019 EXISTING DELAY [b]	[1] YEAR 2019 EXISTING LOS [c]	[2] YEAR 2019 EXISTING W/ PROJECT DELAY [b]	[2] YEAR 2019 EXISTING W/ PROJECT LOS [c]	[2] CHANGE IN DELAY [(2)-(1)]	[3] YEAR 2022 FUTURE PRE-PROJECT DELAY [b]	[3] YEAR 2022 FUTURE PRE-PROJECT LOS [c]	[4] YEAR 2022 FUTURE W/ PROJECT DELAY [b]	[4] YEAR 2022 FUTURE W/ PROJECT LOS [c]	[4] CHANGE IN DELAY [(4)-(3)]
1	Crown Valley Road/ Sierra Highway	AWSC	AM	15.6	C	19.9	C	4.3	16.4	C	21.1	C	4.7
			PM	19.1	C	22.3	C	3.2	20.6	C	24.3	C	3.7
2	Crown Valley Road/ SR-14 Freeway SB Ramps	TWSC	AM	14.7	B	16.1	C	1.4	15.4	C	17.2	C	1.8
			PM	12.4	B	13.0	B	0.6	12.8	B	13.4	B	0.6
3	Crown Valley Road/ SR-14 Freeway NB Ramps	TWSC	AM	15.2	C	18.6	C	3.4	17.0	C	21.9	C	4.9
			PM	14.5	B	16.4	C	1.9	15.4	C	17.9	C	2.5
4	Crown Valley Road/ Antelope Woods Road	TWSC	AM	19.8	C	21.3	C	1.5	20.3	C	22.0	C	1.7
			PM	16.6	C	17.1	C	0.5	16.8	C	17.3	C	0.5

[a] Intersection analysis based on the Highway Capacity Manual operational analysis methodologies.
[b] Reported control delay values in seconds per vehicle. For two-way stop controlled intersections, reported control delay values are the delays associated with the most constrained approach of the intersection.
[c] Unsignalized Intersection Levels of Service are based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-15	B
> 15-25	C
> 25-35	D
> 35-50	E
> 50	F



NOT TO SCALE

PROJECT SITE

FIGURE 9-1

EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY AM PEAK HOUR

ACTON PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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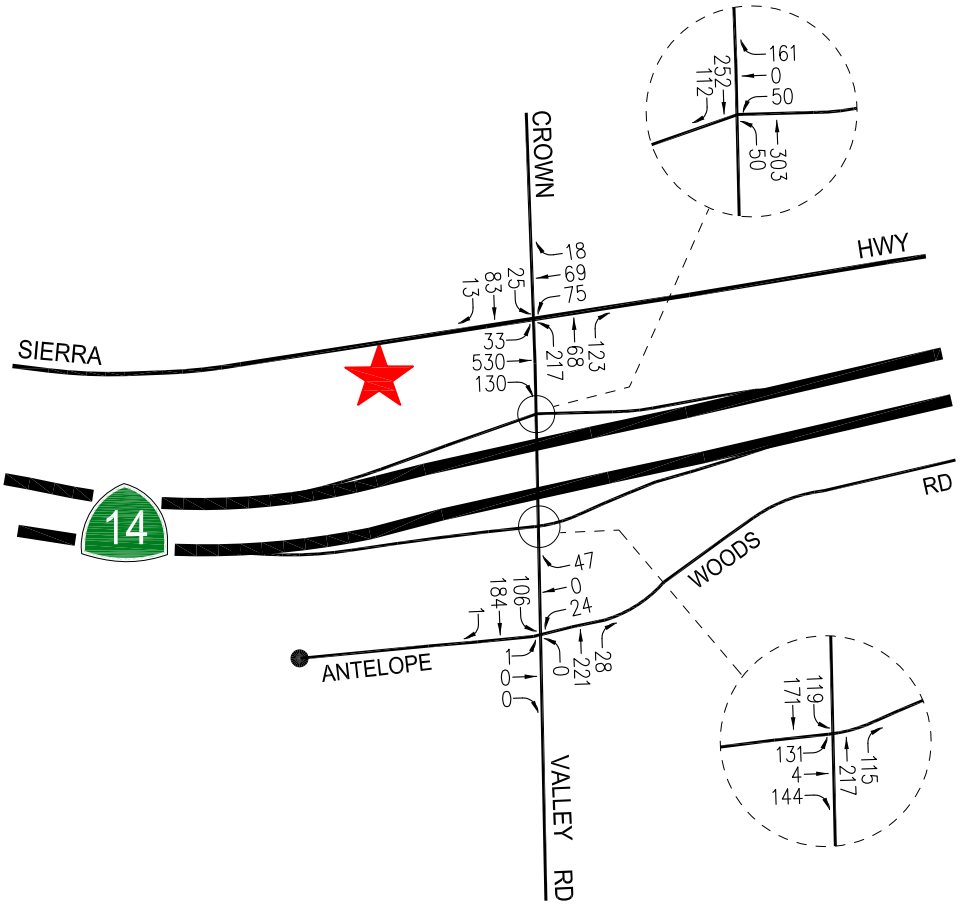

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PROJECT SITE

FIGURE 9-2

EXISTING WITH PROJECT TRAFFIC VOLUMES

WEEKDAY PM PEAK HOUR

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ACTON PROJECT

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indicated in column [3] of *Table 9–2*, all four study intersections are forecast to operate at LOS C or better during the weekday AM and PM peak hours, employing the HCM methodology, for the "With Proposed Project and Related Projects" scenario. The future cumulative with project (existing, related projects and project) traffic volumes at the study intersections during the weekday AM and PM peak hours are provided in ***Figures 9-3*** and ***9-4***, respectively.

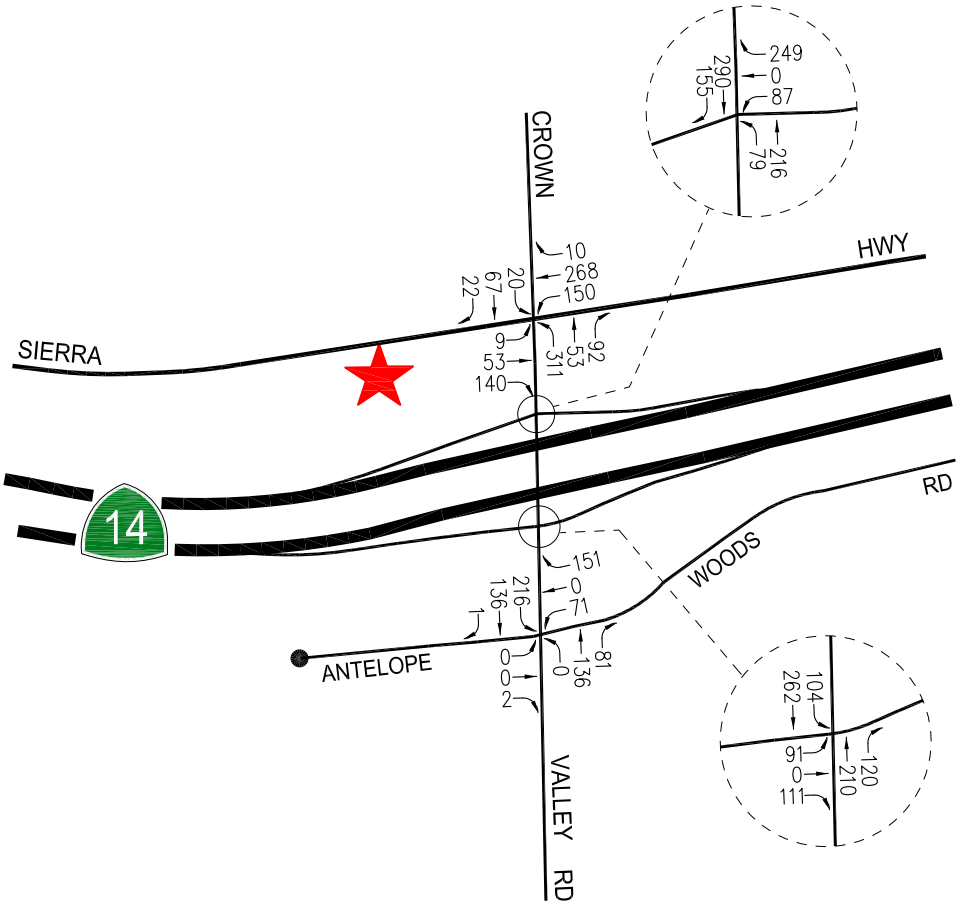
9.3 Review of Potential Vehicle Queuing at Project Site Driveways

A review of the forecast project traffic volumes and potential vehicle queuing at the site driveways has been prepared. The forecast weekday AM and PM peak hour traffic volumes at the two project site driveways and westbound left-turn pocket on Sierra Highway are presented in ***Figure 9-5***. The project traffic volume assignments presented in *Figure 9-5* reflect the traffic distribution characteristics shown in *Figure 7-1* and the project traffic generation forecasts presented in *Table 7-1*. Based on the forecast site driveway volumes as shown in *Figure 3-1*, the following conclusions are presented:

- A total of 17 inbound trips are forecast for the westerly project site driveway during the weekday AM peak hour, including 4 westbound left-turn and 13 eastbound right-turn vehicle trips. This equates to less than approximately one (1) vehicle trip entering the site every three (3) minutes at the westerly driveway. This rate of entering traffic is not anticipated to result in any vehicle queuing within the existing two-way left turn lane or pose a safety concern as only one weekday AM peak hour eastbound left-turn was counted entering the multi-family housing driveway (i.e., located on the north side of Sierra Highway, just east of the project's westerly driveway). In addition, the exiting (southbound) weekday AM peak hour left-turn traffic movement at the multi-family development driveway totaled only 4 vehicles (i.e., roughly one vehicle every 15 minutes).

- A total of 71 inbound trips are forecast for the easterly project site driveway during the weekday AM peak hour, including 66 westbound left-turn and 5 eastbound right-turn vehicle trips. This equates to roughly one (1) vehicle trip per minute entering the site at the easterly driveway. This rate of entering traffic is not anticipated to result in any vehicle queuing within the existing two-way left turn lane or pose a safety concern as only 13 weekday AM peak hour eastbound left-turns were counted entering the westerly gas station driveway (i.e., located on the north side of Sierra Highway, east of the project's easterly driveway).

- A total of 14 inbound trips are forecast for the westerly project site driveway during the weekday PM peak hour, including 3 westbound left-turn and 11 eastbound right-turn vehicle trips. This equates to less than approximately one (1) vehicle trip entering the site every four (4) minutes at the westerly driveway. This rate of entering traffic is not anticipated to result in any vehicle queuing within the existing two-way left turn lane or pose a safety concern as only one weekday PM peak hour eastbound left-turn was counted entering the multi-family housing driveway (i.e., located on the north side of Sierra Highway, just east of the project's



PROJECT SITE

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FIGURE 9-3
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR
ACTON PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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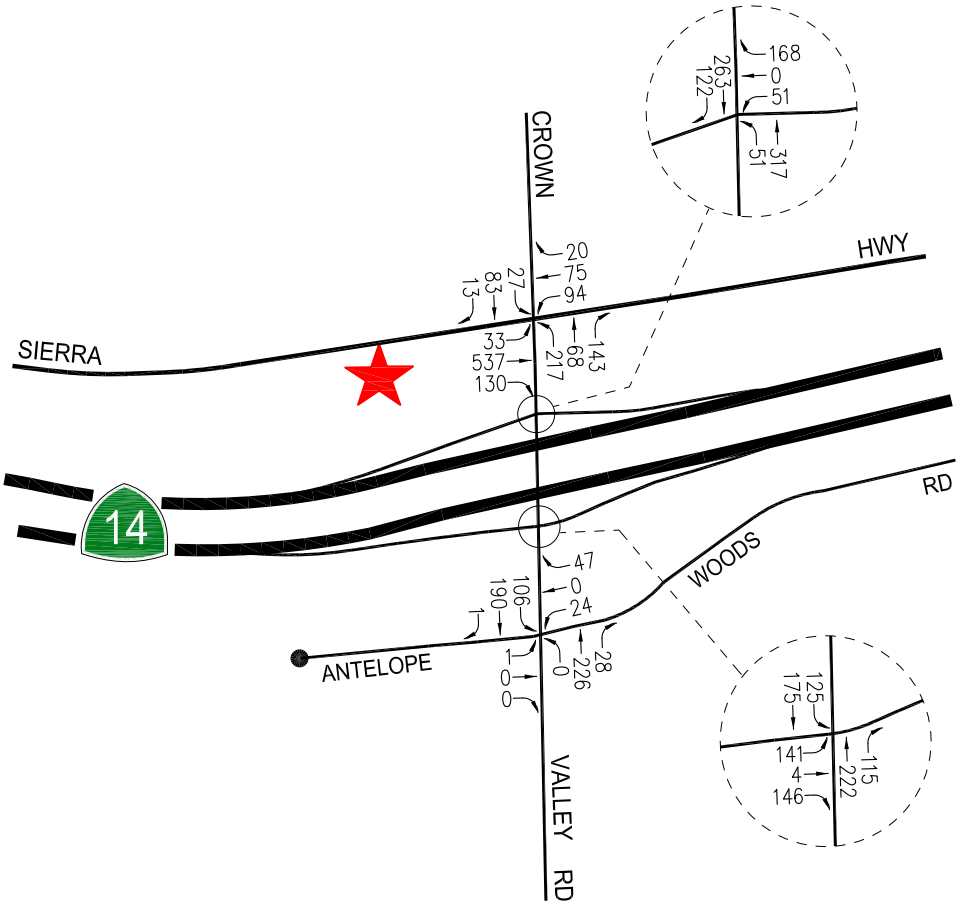

NOT TO SCALE

PROJECT SITE

FIGURE 9-4
FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
ACTON PROJECT

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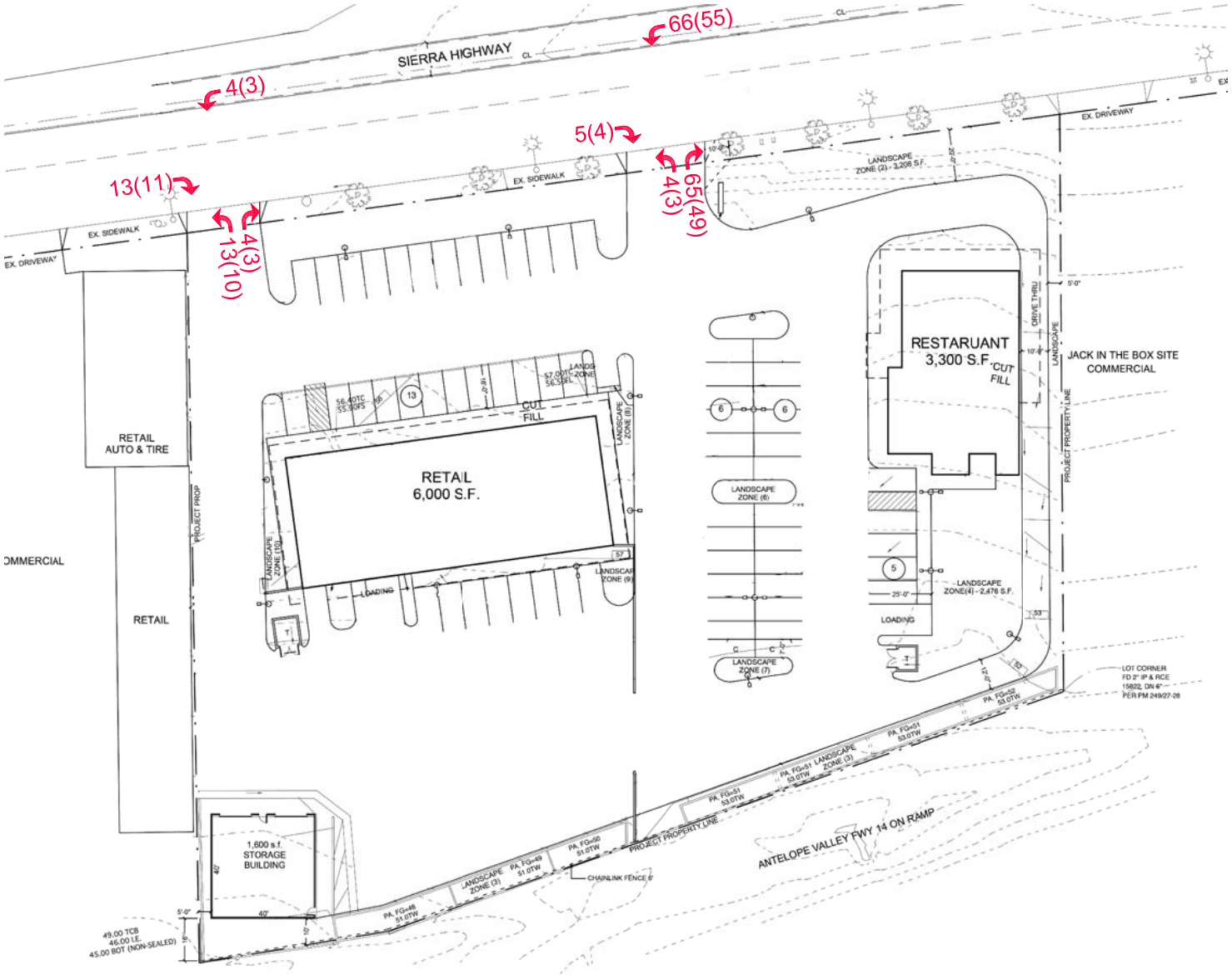

NOT TO SCALE

SOURCE: FRIEDMAN ARCHITECTS & CONTRACTORS

XX(XX) = WEEKDAY AM(PM) PEAK HOUR VOLUMES

FIGURE 9-5
PROJECT SITE DRIVEWAY TRAFFIC VOLUMES

WEEKDAY AM/PM PEAK HOURS

ACTON PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

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westerly driveway). In addition, no exiting (southbound) weekday PM peak hour left-turn traffic movements were observed to occur at the multi-family development driveway.

- A total of 59 inbound trips are forecast for the easterly project site driveway during the weekday PM peak hour, including 55 westbound left-turn and 4 eastbound right-turn vehicle trips. This equates to roughly one (1) vehicle trip per minute entering the site at the easterly driveway. This rate of entering traffic is not anticipated to result in any vehicle queuing within the existing two-way left turn lane or pose a safety concern as only 16 weekday PM peak hour eastbound left-turns were counted entering the westerly gas station driveway (i.e., located on the north side of Sierra Highway, east of the project's easterly driveway).

10.0 CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) ANALYSIS

In addition to the analysis conducted pursuant to the requirements of the County of Los Angeles, a supplemental analysis was conducted of facilities under the jurisdiction of the State of California Department of Transportation (Caltrans). The analyses conducted for Caltrans facilities included ramp intersections and off-ramp queuing. Two Caltrans ramp intersections were analyzed to determine average vehicular control delay and corresponding LOS as well as off-ramp queue lengths. The analyzed freeway ramp intersections correspond to Int. No. 2: Crown Valley Road/SR-14 Freeway Southbound Ramps, and Int. No. 3: Crown Valley Road/SR-14 Freeway Northbound Ramps. The analyses were prepared based on the Highway Capacity Manual (HCM) operational analysis methodologies, pursuant to Caltrans' *Guide for the Preparation of Traffic Impact Studies*[9].

The technical analyses of Caltrans facilities are provided in ***Tables 10-1*** and ***10-2,*** and ***Appendix E*** for the corresponding LOS and queuing worksheets for each type of analysis. ***Table 10-1*** summarizes the Caltrans intersection analysis and ***Table 10-2*** summarizes the Caltrans off-ramp vehicle queuing analyses. Regarding the Caltrans ramp intersection analyses, all LOS are reported at LOS C or better with the proposed Project. In addition, no vehicle queuing back out onto the SR-14 Freeway is anticipated as the 95th percentile off-ramp peak hour vehicle queues do not exceed the 85th percentile storage lengths provided on the subject off-ramps.

[9] *Guide for the Preparation of Traffic Impact Studies,* State of California Department of Transportation, December 2002.

Table 10-1
CALTRANS RAMP INTERSECTION ANALYSIS [a]

NO.	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	[1] YEAR 2019 EXISTING DELAY [b]	[1] YEAR 2019 EXISTING LOS [c]	[2] YEAR 2019 EXISTING W/ PROJECT DELAY [b]	[2] YEAR 2019 EXISTING W/ PROJECT LOS [c]	[2] CHANGE IN DELAY [(2)-(1)]	[3] YEAR 2022 FUTURE PRE-PROJECT DELAY [b]	[3] YEAR 2022 FUTURE PRE-PROJECT LOS [c]	[4] YEAR 2022 FUTURE W/ PROJECT DELAY [b]	[4] YEAR 2022 FUTURE W/ PROJECT LOS [c]	[4] CHANGE IN DELAY [(4)-(3)]
2	Crown Valley Road/	TWSC	AM	14.7	B	16.1	C	1.4	15.4	C	17.2	C	1.8
	SR-14 Freeway SB Ramps		PM	12.4	B	13.0	B	0.6	12.8	B	13.4	B	0.6
3	Crown Valley Road/	TWSC	AM	15.2	C	18.6	C	3.4	17.0	C	21.9	C	4.9
	SR-14 Freeway NB Ramps		PM	14.5	B	16.4	C	1.9	15.4	C	17.9	C	2.5

[a] Intersection analysis based on the Highway Capacity Manual operational analysis methodologies, per the Caltrans' *Guide for the Preparation of Traffic Impact Studies*, December 2002.

[b] Reported control delay values in seconds per vehicle. For two-way stop controlled intersections, reported control delay values are the delays associated with the most constrained approach of the intersection.

[c] Unsignalized Intersection Levels of Service are based on the following criteria:

Control Delay (s/veh)	LOS
<= 10	A
> 10-15	B
> 15-25	C
> 25-35	D
> 35-50	E
> 50	F

Table 10-2
SUMMARY OF OFF-RAMP VEHICLE QUEUING ANALYSIS [1]
WEEKDAY AM AND PM PEAK HOURS

NO.	INTERSECTION	PEAK HOUR	85th PERCENTILE AVAILABLE OFF-RAMP STORAGE [2] (FEET)	EXISTING YEAR 2019		EXISTING YEAR 2019 WITH PROJECT		FUTURE YEAR 2022 WITHOUT PROJECT		FUTURE YEAR 2022 WITH PROJECT	
				95th PERCENTILE QUEUE [3] (FEET)	EXCEEDS 85th PERCENTILE STORAGE? (YES/NO)	95th PERCENTILE QUEUE [3] (FEET)	EXCEEDS 85th PERCENTILE STORAGE? (YES/NO)	95th PERCENTILE QUEUE [3] (FEET)	EXCEEDS 85th PERCENTILE STORAGE? (YES/NO)	95th PERCENTILE QUEUE [3] (FEET)	EXCEEDS 85th PERCENTILE STORAGE? (YES/NO)
2	Crown Valley Road/ SR-14 Freeway SB Ramps	AM	760	78	No	93	No	85	No	103	No
		PM	760	33	No	38	No	35	No	40	No
3	Crown Valley Road/ SR-14 Freeway NB Ramps	AM	1,040	48	No	68	No	60	No	85	No
		PM	1,040	58	No	70	No	65	No	80	No

[1] Refer to calculation worksheets in Appendix D.

[2] Available storage represents 85 percent (85%) of total storage space, as measured via Caltrans Earth, 2017. The total storage space includes the length of all formally striped lanes on the off-ramp.

[3] The 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes. The reported queue represents the sum of the 95th percentile vehicle queues for all lanes of the off-ramp. An average vehicle length of (including vehicle separation) was assumed for analysis purposes.

11.0 TRANSPORTATION IMPROVEMENT AND TRAFFIC MANAGEMENT MEASURES

As summarized in Subsections 9.1.2 (Existing With Project Conditions) and 9.2.2 (Future Cumulative With Project Conditions) herein, application of the County's threshold criteria to the with proposed project scenarios indicates that the proposed project is not expected to create significant impacts at any of the study intersections. Because there are no significant impacts, no traffic mitigation measures are required or recommended for the study intersections. However, as noted previously (refer to Subsections 3.1.3 and 3.1.4 herein), the following transportation management measures are recommended to facilitate vehicular access to and from the planned project site:

- Install appropriate pavement markings (i.e., stop bar with STOP legend) on the project drive aisles just south of the public sidewalk to ensure that motorists stop prior to the sidewalk along Sierra Highway before exiting the site.

- It is recommended that the previously approved extension of the two-way left-turn lane on Sierra Highway be constructed to better accommodate exiting left-turn movements from the project site's westerly driveway.

- Maintain low height landscaping (i.e., 36 inches or less) along the north side of the project site so as to not impede sight distance for vehicles exiting the site and approaching vehicles on Sierra Highway.

In addition to the vehicular site access/traffic management recommendations, it is recommended that the project applicant install and maintain a transportation information display kiosk in a common area that also displays the following in order to facilitate and encourage use of public transportation:

- Maps, routes, and schedules for public transit serving the site.

- Materials publicizing internet and telephone numbers for referrals on transportation information.

- Ridesharing promotional material supplied by Los Angeles County and/or other publicly supported transportation organizations.

12.0 TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic signal warrant analysis has been prepared for the Crown Valley Road/Sierra Highway intersection to determine whether a traffic signal installation is warranted using current and future traffic volumes. In addition, research of available accident data has been conducted. The traffic signal warrant analysis is based on traffic signal warrants outlined in the *California Manual on Uniform Traffic Control Devices*[10] (MUTCD).

Briefly, based on the traffic signal warrants analysis contained herein, one (1) of the warrants (Warrant No. 3) is satisfied based on strict application of the MUTCD warrant guidelines at the Crown Valley Road/Sierra Highway intersection. However, even if none of the traffic signal warrants are met, other factors may be just cause for consideration of a traffic signal installation. Likewise, just because one or more warrants are met it does not automatically justify installation of a traffic signal. The lead agency must carefully consider all aspects related to installation of traffic controls, including sight distance, speeds, etc.

12.1 Existing Setting

Sierra Highway is generally an east-west oriented roadway that is designated as a Major Highway in the County's Highway Plan, adopted in May 2014. Crown Valley Road is generally a north-south oriented roadway designated as a Limited Secondary Highway, north of Sierra Highway and as a Secondary Highway, south of Sierra Highway in the County's Highway Plan. Both Sierra Highway and Crown Valley Road are posted for a 45 miles per hour speed limit.

The intersection of Crown Valley Road/Sierra Highway is currently operated as an all-way stop controlled intersection with stop signs facing all approaches. The following lane configurations are currently provided at the subject intersection:

- Northbound Crown Valley Road Approach: One left-turn lane, one through lane and one right-turn lane.
- Southbound Crown Valley Road Approach: One left-turn lane and one shared through/right-turn lane.
- Eastbound Sierra Highway Approach: One left-turn lane, one through lane and one right-turn lane.
- Westbound Sierra Highway Approach: One left-turn lane and one shared through/right-turn lane.

[10] *California Manual on Uniform Traffic Control Devices (MUTCD),* State of California, California State Transportation Agency, Department of Transportation, 2014 Edition Revision 3 (March 9, 2018).

12.2 Traffic Signal Warrants

The determination of whether the installation of a traffic signal is warranted was based on criteria set forth in Chapter 4C of the California MUTCD. Traffic signal warrants were prepared for the Crown Valley Road/Sierra Highway intersection. Specifically, Warrant No. 1 (Eight-Hour Vehicular Volume), Warrant No. 2 (Four-Hour Vehicular Volume), Warrant No. 3 (Peak Hour), and Warrant No. 7 (Crash Experience) were prepared. The Eight-Hour Vehicular Volume and Four-Hour Vehicular Volume warrants were prepared using existing 24-hour traffic volumes conducted in 2019. The traffic signal warrant worksheets are contained in ***Appendix F***. Refer to *Appendix F* for the eight-hour volume data and for the peak hour volume data.

For purposes of the traffic signal warrant analyses, Sierra Highway was assumed to be the major street while Crown Valley Road was assumed to be the minor street. The stated numerical values used to determine whether traffic signal warrants are met are based on the sum of both approaches on the major street (e.g., eastbound and westbound Sierra Highway approaches) and on the higher of the minor street approach to the intersection on Crown Valley Road. In addition, the vicinity of the project is considered to be a rural area. The following paragraphs provide detailed discussions of the traffic signal warrants prepared for the intersection.

<u>Warrant 1: Eight-Hour Vehicular Volume</u>

The Eight Hour Vehicular Volume warrant consists of three conditions: Condition A - The Minimum Vehicle Volume, Condition B – The Interruption of Continuous Traffic, and the Combination of Conditions A and B.

The Minimum Vehicular Volume warrant (Condition A) is intended for application where a large volume of intersecting traffic is the principal reason for consideration of a signal installation. The warrant is satisfied when for each of any eight hours of an average day the traffic volumes provided in the table for Warrant 1 under Condition A exist on the major street and on the higher-volume minor street approach to the intersection.

The Interruption of Continuous Traffic warrant (Condition B) applies to operating conditions where Condition A is not satisfied and where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or hazard in entering or crossing the major street. The warrant is satisfied when, for each of any eight hours of an average day, the traffic volumes given in the table exist on the major street and on the higher-volume minor street approach to the intersection, and the signal installation will not seriously disrupt progressive traffic flow.

The Combination of Conditions A and B warrant applies at locations where Conditions A and B are not satisfied but where Conditions A and B are satisfied to the extent of 80 percent or more of the stated numerical values.

For purposes of determining the eight hour vehicular volume criteria associated with Warrant 1, weekday 24-hour average daily traffic (ADT) counts were conducted at the subject intersection. The ADT data was then summarized on an hourly basis in order to determine the eight hours of traffic volume for both the major street approaches (Sierra Highway) and the minor street approaches (Crown Valley Road) and subsequently was utilized in the review of the eight hour vehicular volume criteria. The summary of the ADT counts and the corresponding traffic data worksheets is contained in *Appendix F*.

As shown in the traffic signal warrant worksheets contained in *Appendix F*, Conditions A and B associated with Warrant 1-Eight Hour Vehicular Volume are not met for the subject intersection under both the Existing and Future Cumulative Conditions. Furthermore, the combination of Conditions A and B warrant is not met for either condition. Therefore, Warrant 1 is not satisfied for the Crown Valley Road/Sierra Highway intersection.

Warrant 2: Four-Hour Vehicular Volume

The Four-Hour Vehicular Volume signal warrant conditions are intended for application where the volume of intersection traffic is the principal reason to consider installing a traffic control signal. The Four-Hour Vehicular Volume Warrant is satisfied, when for each of any four hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) all fall above the curve in Figure 4C-2 for the combination of approach lanes. The lower threshold for a minor street approach with two or more lanes is 80 vehicles per hour.

As indicated in Figure 4C-2 provided in the traffic signal warrant worksheets contained in *Appendix F*, the plotted points for the four highest hours of the day all fall above the applicable curve under both the Existing and Future Cumulative Conditions. Thus, Warrant 2 is satisfied for the Crown Valley Road/Sierra Highway intersection.

Warrant 3: Peak Hour Warrant

The Peak Hour Warrant consists of Part A and Part B and is intended for application where traffic conditions are such that for one hour of the day minor street traffic suffers undue delay in entering or crossing the major street. The Peak Hour warrant applies when one of the following criteria are satisfied:

- Part A. If all three of the following conditions exist for the same one hour (any four consecutive 15-minute periods) of an average day:
    1. The total delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach, and
    2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and

3. The total entering volume serviced during the hour equals or exceeds 800 vehicles per hour for intersections with four or more approaches or 650 vehicles per hour for intersections with three approaches.

As shown in the traffic signal warrant worksheets contained in *Appendix F*, Part A of Warrant 3 is not satisfied since Item No. 1 of the conditions is not met. The total delay experienced by traffic on Crown Valley Road does not equal or exceed four vehicle-hours.

- Part B of Warrant No. 3 is satisfied when the plotted point, representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach (one direction only) for one hour of an average day, falls above the curve in Figure 4C-4 for the applicable number of approach lanes. The lower threshold for a minor street approach with one lane is 100 vehicles per hour while a minor street with two or more lanes is 150 vehicles per hour. As shown in the worksheet, the signal warrant is met when the plotted point falls above the appropriate curve.

  As shown the traffic signal warrant worksheets contained in *Appendix F*, the plotted point for the peak hour falls above the applicable curve for the subject intersection under both the Existing and Future Cumulative Conditions. Therefore, Part B of Warrant 3-Peak Hour is met for the Crown Valley Road/Sierra Highway intersection.

<u>Warrant 7: Crash Experience Warrant</u>

The Crash Experience Warrant is intended for application where the severity and frequency of collisions are the primary reasons to consider installation of a traffic signal. The Crash Experience warrant applies when all of the following criteria are satisfied:

- Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and
- Five or more reported crashes within a 12-month period susceptible to correction by a traffic signal and involving injury or damage exceeding the requirements for a reportable crash; and
- Condition A or B of Warrant 1 (Eight Hour Vehicular Volume) or Warrant No. 4 (Pedestrian Volume) is satisfied to the extent of 80 percent or more of the stated numerical values.

A review was conducted to determine the number and types of traffic accidents that have occurred in the vicinity of the subject intersection. Traffic accident data were obtained from the California Highway Patrol's (CHP's) online Statewide Integrated Traffic Records System (SWITRS) database for the most recent five-year period. The corresponding intersection collision history report is summarized in ***Table 12-1***.

According to the collision history report, no accidents involving a fatality occurred and only one accident involved injuries within the reporting period. While there were five accidents within a 12-month period (i.e., between November 13, 2017 and September 26, 2018), only two of the five have been determined to be potentially correctable by installation of a traffic signal.

Table 12-1
COLLISION HISTORY [1]
Crown Valley Road/Sierra Highway

NO.	DATE OF COLLISION	TIME OF DAY	DAY OF WEEK	DISTANCE FROM INTERSECTION	WEATHER CONDITIONS	ROADWAY SURFACE	LIGHTING	MOVEMENT PRECEEDING COLLISION		PRIMARY COLLISION FACTOR	VEHICLE CODE VIOLATION SUBSECTION	TYPE OF COLLISION	NUMBER KILLED	NUMBER INJURED
								AT FAULT PARTY	OTHER PARTY					
1	07/22/2019	11:18 AM	Monday	30' North	Clear	Dry	Daylight	Northbound Making Right Turn	-	Improper Turning	22107	Hit Object	0	0
2	02/19/2019	8:00 AM	Tuesday	57' South	Clear	Dry	Daylight	Northbound Proceeding Straight	Northbound Stopped	Unsafe Speed	22350	Rear End	0	0
3	09/26/2018	5:25 PM	Wednesday	200' West	Clear	Dry	Daylight	Eastbound Changing Lanes	Eastbound Stopped	Improper Passing	21750A	Rear End	0	0
4	06/04/2018	-	Monday	200' West	Clear	Dry	Daylight	Southbound Making Right Turn	Southbound Parked	Improper Turning	22107	Sideswipe	0	0
5	05/26/2018	12:25 AM	Saturday	In Intersection	Clear	Dry	Dark - Street Lights Not Functioning	Eastbound Proceeding Straight	Southbound Proceeding Straight	Automobile Right of Way	21802A	Broadside	0	0
6	11/16/2017	6:00 PM	Thursday	In Intersection	Raining	Wet	Dark - Street Lights Present	Northbound Proceeding Straight	Eastbound Proceeding Straight	Automobile Right of Way	21802A	Broadside	0	2
7	11/13/2017	6:15 AM	Monday	30' North	Clear	Dry	Daylight	Southbound Proceeding Straight	Southbound Stopped	Unsafe Speed	22350	Rear End	0	0
8	03/29/2017	10:13 AM	Wednesday	180' West	Clear	Dry	Daylight	Southbound Entering Traffic	Southbound Parked	Unsafe Starting or Backing	22106	Rear End	0	0
9	02/17/2015	11:45 AM	Tuesday	27' South	Clear	Dry	Daylight	Southbound Proceeding Straight	Southbound Making Right Turn	Unsafe Speed	22350	Sideswipe	0	0

[1] Collision data were requested from the California Highway Patrol's (CHP) online Statewide Integrated Traffic Records System (SWITRS) database on October 30, 2019. Records were requested for the most recent five year period. According to the SWITRS website, data from seven months prior to the date of request should be considered incomplete due to a collision records processing backlog. Therefore, the most recent five year period includes March 31, 2014 through March 30, 2019. Collision records from March 31, 2019 through the present are included for informational purposes.

For purposes of determining the eight hour vehicular volume criteria associated with Warrant 7, weekday 24-hour average daily traffic (ADT) counts were conducted at the subject intersection. The ADT data was then summarized on an hourly basis in order to determine the eight hours of traffic volume for both the major street approaches (Sierra Highway) and the minor street approaches (Crown Valley Road) and subsequently was utilized in the review of the eight hour vehicular volume criteria. The summary of the ADT counts and the corresponding traffic data worksheets is contained in *Appendix F* (refer to ***Appendix Table F-1***).

As shown in the traffic signal warrant worksheets contained in *Appendix F*, while five reported crashes occurred within a 12-month period, only two of those are potentially correctable by installation of a traffic signal. Warrant 7 is not satisfied since Item Nos. 1, 2, and 3 of the conditions are not met. An adequate trial of alternatives with satisfactory observance and enforcement has not been considered or implemented by the County. In addition, Condition A or B of Warrant 1 (Eight Hour Vehicular Volume) is not satisfied 100 percent. Therefore, Warrant 7 is not satisfied based on strict application of the warrant worksheets. In summary, the above traffic signal warrant analyses indicate that only one of the warrants (Warrant No. 3) is satisfied based on the existing traffic conditions at the Crown Valley Road/Sierra Highway intersection. As this warrant is met under existing conditions, independent of the proposed project, and the only warrant of several prepared that is met, it is recommended that the County continue to monitor conditions over time to assess whether additional warrants might be met in the future. The project, in of itself, does not cause additional warrants above and beyond the one met under existing conditions to be met.

13.0 VMT ASSESSMENT

As previously noted, on September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 (Steinberg, 2013). Among other things, SB 743 created a process to change the way analysis of transportation impacts under CEQA is conducted. The Governor's Office of Planning and Research (OPR) was tasked to amend the CEQA Guidelines[11] to provide an alternative to the traditional metric of automobile delay which would promote three statutory goals: the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.

Under SB 743, the focus of transportation analysis pursuant to CEQA shifts from driver delay, or level of service, to reduction of vehicle miles traveled, reduction in greenhouse gas emissions, creation of multimodal networks and promotion of mixed-use developments. In December 2018, the California Natural Resources Agency certified and adopted amendments to the CEQA Guidelines implementing SB 743 *for Evaluating Transportation Impacts in CEQA*[12] (hereafter referred to as with an implementation date of July 1, 2020, which has passed. OPR has provided recommendations regarding the screening of projects in the current *Technical Advisory* the *Technical Advisory*).

Project Screening Criteria

Lead agencies traditionally have set certain thresholds to determine whether a project requires transportation analysis or if a project could be expected to cause less than significant impacts without a detailed study. Typically, these thresholds were based on a project's peak hour trip generation forecast (e.g., if a project was expected to result in 50 or more weekday AM or PM peak hour vehicle trips). Under SB 743, this shifts to VMT methodology and a screening process to determine if a project will be required to conduct a detailed (quantitative) assessment of VMT. OPR's *Technical Advisory* included several criteria for project screening purposes and the County of Los Angeles has followed this guidance as described in the following paragraphs.

Transit Proximity Screening

The CEQA Guidelines were amended to include section 15064.3, "Determining the Significance of Transportation Impacts". Subsection (b)(1) states in part:

"Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact."

Pursuant to the statute, development projects may be screened out of VMT analysis based on proximity to certain transit facilities due to the presumption of less than significant impacts. The

[11] California Code of Regulations Title 14 "Natural Resources", Division 6 "Resources Agency", Chapter 3 "Guidelines for Implementation of the California Environmental Quality Act".

[12] *Technical Advisory on Evaluating Transportation Impacts in CEQA*, Governor's Office of Planning and Research, December 2018.

Technical Advisory reiterates this screening criteria, but also highlights certain project-specific or location-specific characteristics which may indicate the project will still generate "significant levels of VMT", even when located within one-half mile of a major transit stop or a stop along a high-quality transit corridor. These characteristics relate to the project's floor area ratio (FAR), parking supply, and number of dwelling units, as well as consistency with the applicable Sustainable Communities Strategy. If the project has any characteristics which indicate that the presumption of less than significant impacts as stated in the CEQA Guidelines may not be appropriate, the *Technical Advisory* recommends that the project should not be screened out of further VMT analysis. While Section 5.5 summarizes the transit services provided in Acton and the project site is located directly across the street from an existing bus stop within the City, this screening criteria is not met since the stop does not meet the specific definitions of a major transit stop or a stop along a high-quality transit corridor.

Project Size (Small Projects)

The *Technical Advisory* recommends that VMT analyses be conducted for projects which are forecast to generate 110 or more average daily trips or are greater than 50,000 square feet or retail. The CEQA Guidelines provide a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet[13]. OPR states that:

"Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or few trips could be considered not to lead to a significant impact."

OPR reasons that projects which are forecast to generate fewer than 110 daily trips would be comparable to categorically exempt projects and could be presumed to cause less than significant impacts. OPR also classifies retail development of less than 50,000 square feet as "locally-serving", thus resulting in a shortening of trip lengths and a presumption of a less than significant VMT impact. The latest *Los Angeles County Public Works Transportation Impact Analysis Guidelines* (dated July 23, 2020) and their *Los Angeles County Senate Bill (SB) 743 Implementation and CEQA Updates Report* (dated June 2020) note that "local serving retail" screening can include general retail, pharmacy/drugstore, supermarket, bank, health club, café or restaurant land uses if the project size is less than 50,000 square feet.

[13] CEQA Guidelines Section 15301, Subsection (e)(2).

VMT Qualitative Assessment Conclusion

Based on the County's latest transportation impact analysis guidelines and VMT screening criteria related to retail project size, a less than significant VMT impact is expected due to the development of the proposed project, as it is a retail project as defined by the County and is less than 50,000 square feet. A quantitative VMT assessment is not required to be performed since the project is expected to result in a less than significant VMT impact.

14.0 SUMMARY AND CONCLUSIONS

- ***Project Description*** – The proposed Acton project consists of the development of a multi-use commercial project with retail and restaurant land use components. The retail land use component is planned to be contained within a single 6,000 square-foot building which will be located in the westerly portion of the project site. The restaurant land use component entails a 3,300 square-foot building that is planned to provide 68 seats and will be located in the easterly portion of the project site. The restaurant land use component also includes a drive-through service lane to be located along the east side of the building (i.e., adjacent to the easterly property frontage). Additionally, an ancillary 1,600 square-foot storage building is planned to be constructed at the southwest corner of the project site. The project site is currently planned to provide a total of 64 parking spaces via interconnected surface parking areas. Construction of the proposed project is expected to commence in year 2020 with build-out in year 2022.

- ***Vehicular Site Access*** – Vehicular access to the proposed project will be provided via two driveways located along the south side of Sierra Highway. Vehicular circulation through the project site will be accommodated via two-way drive aisles that will extend between the project site driveways and the surface parking areas. The westerly project site driveway will be located at the northwest corner of the project site. Due to the termination of the two-way left-turn lane in the middle of Sierra Highway just east of this proposed driveway, the roadway striping will need to be modified as previously approved in order to provide full access at this driveway via a westerly extension of the two-way left-turn lane. The easterly project site driveway will be located near the middle of the project site. Both of the project site driveways will be constructed to County of Los Angeles design standards.

- ***Study Scope –*** A total of four off-site study intersections was selected for analysis in consultation with LACPW staff in order to determine potential impacts related to the proposed project.

- ***Project Trip Generation*** –The proposed project is expected to generate 156 vehicle trips (79 inbound trips and 77 outbound trips) during the weekday AM peak hour. During the weekday PM peak hour, the proposed project is expected to generate 124 vehicle trips (65 inbound trips and 59 outbound trips). Over a 24-hour period, the proposed project is forecast to generate 1,638 daily trip ends during a typical weekday (819 inbound trips and 819 outbound trips).

- ***Related Projects*** – The County of Los Angeles Department of Regional Planning was consulted to obtain the list of development projects (related projects) in the area. Two related project was identified and considered as part of the cumulative traffic analysis.

- ***Transportation Impact Analysis*** – It is concluded that the proposed project is not expected to create significant impacts at any of the four off-site study intersections or project driveways under either the "Existing With Project" or "Future With Project" conditions based on the County of Los Angeles thresholds of significance used for evaluating traffic impacts. Because

there are no significant impacts, no traffic mitigation measures are required or recommended for the study intersections.

- ***Caltrans Traffic Analysis*** – Supplemental analyses of Caltrans facilities, including ramp intersections and freeway off-ramps for queuing, were conducted pursuant to Caltrans' transportation study guidelines. Regarding the Caltrans ramp intersection analyses, all LOS are reported at LOS C or better with the proposed Project. In addition, no vehicle queuing back out onto the SR-14 Freeway is anticipated, as the 95th percentile off-ramp peak hour vehicle queues do not exceed the 85th percentile storage lengths provided on the subject off-ramps.

- ***Transportation Improvement and Management Measures*** – While the proposed project is not forecast to result in significant impacts at any of the study intersections, the following site access/transportation management measures are recommended to facilitate vehicular access to and from the planned project site:

  - Install appropriate pavement markings (i.e., stop bar with STOP legend) on the project drive aisles just south of the public sidewalk to ensure that motorists stop prior to the sidewalk along Sierra Highway before exiting the site.

  - It is recommended that the previously approved extension of the two-way left-turn lane on Sierra Highway be constructed to better accommodate exiting left-turn movements from the project site's westerly driveway.

  - Maintain low height landscaping (i.e., 36 inches or less) along the north side of the project site so as to not impede sight distance for vehicles exiting the site and approaching vehicles on Sierra Highway.

- ***Traffic Signal Warrant Analyses*** – Based on the traffic signal warrants analyses contained herein, only one of the four traffic signal warrants (Warrant 3 – Peak Hour Warrant) prepared for the Crown Valley Road/Sierra Highway intersection is satisfied based on strict application of the MUTCD warrant guidelines. Warrant 1 (Eight-Hour Vehicular Volume), Warrant 2 (Four-Hour Vehicular Volume), and Warrant 7 (Crash Experience) are not satisfied. As such, it is recommended that the County continue to monitor conditions over time to assess whether additional warrants might be met in the future.

- ***VMT Assessment*** – Based on the County's latest transportation impact analysis guidelines and VMT screening criteria related to retail project size, a less than significant VMT impact is expected due to the development of the proposed project, as it is a retail project as defined by the County and is less than 50,000 square feet. Thus, a quantitative VMT assessment is not required to be performed since the project is expected to result in a less than significant VMT impact.

APPENDIX A

APPROVED LAYOUT FOR MODIFICATION OF THE TWO-WAY LEFT-TURN LANE ON SIERRA HIGHWAY

CONSTRUCTION NOTES

1. REMOVE CONFLICTING STRIPING
2. INSTALL DETAIL 32.
3. INSTALL 12" YELLOW DIAGONAL LINE.

GENERAL NOTES:

1. ALL TRAFFIC LINES AND PAVEMENT MARKINGS SHOWN SHALL BE INSTALLED WITH THERMOLASTIC BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.

2. ALL TRAFFIC LINES AND PAVING MARKINGS SHALL CONFORM TO CAL TRANS STANDARD PLANS AND SPECIFICATIONS (2010 EDITION)

3. ALL CONFLICTING LINES AND MARKINGS SHALL BE REMOVED BY WET SANDBLASTING OR GRINDING (THEN PAINTED BLACK) AND INCLUDES REMOVAL OF RAISED PAVEMENT MARKERS.

4. ALL TURN ARROW MARKINGS SHALL BE TYPE IV (L OR R) UNLESS OTHERWISE NOTED.

5. ALL LANE STRIPING AT INTERSECTION APPROACHES WITHOUT CROSSWALKS OR LIMIT LINES SHALL END 10 FEET FROM THE EXTENSION OF THE INTERSECTING CURB LINE.

6. ALL LANE LINES AT INTERSECTION APPROACHES AND DEPARTURES SHALL BEGIN AND END WITH 50 FEET OF 4-INCH SOLID WHITE LINE.

7. LANE WIDTHS SHALL BE MEASURED BETWEEN THE CENTERLINES OF EACH ADJACENT SINGLE OR DOUBLE STRIPE OR TOP OF CURB AS APPROPRIATE.

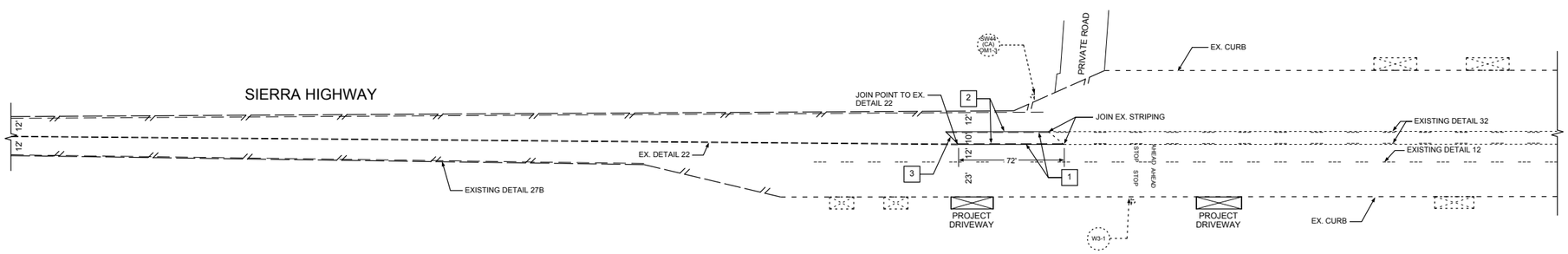
8. PROPOSED LIMIT LINE SHOULD BE INSTALLED AT A MINIMUM OF 4 FEET BEHIND THE EXISTING CURB EXTENSION OR EDGE OF TRAVEL WAY (NO EXISTING CURB RAMP). IN THE CASE OF INTERSECTION WITH CURB RAMP, THE LIMIT LINE SHALL BE PLACED BEHIND THE RAMP'S LANDING AREA, BUT IN NO CASE GREATER THAN 30 FEET BACK.

9. EXISTING RAISED PAVEMENT MARKERS DAMAGED DURING REMOVAL SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE AGENCY.

10. ALL SIGNING SHOWN HEREON SHALL BE INSTALLED, RELOCATED, OR REMOVED BY THE LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS AT THE DEVELOPER'S EXPENCE. CALL (626) 458-1708 FIVE (5) WORKING DAYS PRIOR FOR COORDINATION.

11. SEE TRAFFIC SIGNAL PLAN FOR LOCATION OF CROSSWALKS AT SIGNALIZED INTERSECTIONS.

12. LOCATIONS OF PROPOSED SIGNS ARE SHOWN TO SCALE ON THE PLANS, UNLESS OTHERWISE NOTED.



APPENDIX FIGURE A-1

#	PROJECT	CAD FILE NAME	DATE	BY	REVISIONS

DRAWN
SPOTTED
SUPERVISED BY:
REVIEWED BY:

REGISTERED PROFESSIONAL ENGINEER STEPHEN W. JONES No. 38302 RENEWAL 3-31-19 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:
FERRIS JONES & CO.
CONSULTING CIVIL ENGINEERS
FERRIS JONES & CO.
136 N. GRAND AVE., STE 154
WEST COVINA, CA 91791
626-332-3366
SJONES.RCE302@YAHOO.COM
RCE No. 38302 EXP. 3/31/17

DATE: 5-1-18

REVIEWED:
BY: _____ DATE: _____

RECOMMENDED:
BY: _____ DATE: _____

APPROVED: MARK PESTRELLA, DIRECTOR OF PUBLIC WORKS
BY: _____ DATE: _____
ASSISTANT DEPUTY DIRECTOR

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
TRAFFIC AND LIGHTING DIVISION

SIGNING AND STRIPING PLAN
SIERRA HIGHWAY
720' TO 820' W/O CROWN VALLEY ROAD

P.M. 16832	SHT. 1 of 1	SCALE: 1" = 40'-0"	G.D. 4023

T.G. 4375-A6

APPENDIX B

QUEUING ASSESSMENT FOR THE PROPOSED RAISING CANE'S WITH DRIVE-THROUGH, ONTARIO, CA

LINSCOTT
LAW &
GREENSPAN
engineers

Engineers & Planners
Traffic
Transportation
Parking

Linscott, Law & Greenspan, Engineers
2 Executive Circle
Suite 250
Irvine, CA 92614
949.825.6175 T
949.825.6173 F
www.llgengineers.com

Pasadena
Irvine
San Diego
Woodland Hills

April 21, 2017

Mr. Jeff Liederman, Regional Manager
PM Design Group, Inc.
38 Executive Park, Suite 310
Irvine, California 92614

LLG Reference: 2.17.3810.1

Subject: **Queuing Assessment for the Proposed Raising Cane's with Drive-Through**
Ontario, California

Dear Mr. Liederman:

As requested, Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit this Queuing Assessment for the proposed Raising Cane's with Drive-Through Project to be located at 4360 Mills Circle in the City of Ontario, California. Pursuant to our discussions, this queuing assessment is required by the City of Ontario as part of the approval process for the proposed Project. Our method of analysis, findings and recommendations are described in detail in the following sections of this report.

PROJECT LOCATION AND DESCRIPTION

The project site is located on a 1.52± acre rectangular-shaped parcel of land; on the southeast corner of Milliken Avenue and Inland Empire Boulevard/Mall Drive at 4360 Mills Circle in the City of Ontario, California. The site is currently developed with a Coco's Bakery Restaurant. ***Figure 1***, attached, presents a vicinity map, which illustrates the general location of the project.

The proposed Project includes the construction of a 4,086 square-foot (SF) Raising Cane's with Drive-Through. Access to the Project site is provided via an existing full-access driveway on Mill Circle and an existing "right-turn in/out only" driveway on Milliken Avenue that is shared with La-Z-Boy Furniture Galleries and Ayres Suites located directly south of the Project site.

Visitors to the proposed Raising Cane's restaurant have two (2) options with respect to service: (1) customers can enter the restaurant and order and have their meal inside and (2) customers can access the site from Mill Circle or Milliken Avenue and enter the drive-thru lane in a counterclockwise manner. The drive-thru lane provides enough storage to accommodate up to fourteen (14) vehicles (measured from the

Philip M. Linscott, PE (1924-2000)
Jack M. Greenspan, PE (Ret.)
William A. Law, PE (Ret.)
Paul W. Wilkinson, PE
John P. Keating, PE
David S. Shender, PE
John A. Boarman, PE
Clare M. Look-Jaeger, PE
Richard E. Barretto, PE
Keil D. Maberry, PE

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entry of the drive-through lane to the pick-up window). Parking for the Project will be provided via 50 spaces located immediately adjacent to the proposed building.

Figure 2 presents the existing site aerial. ***Figure 3*** presents the site plan for the proposed Project prepared by PM Design.

DRIVE-THROUGH LANE QUEUING EVALUATION

Existing queuing observations were performed at three Raising Cane's locations. Queuing observations were collected between 11:00AM to 2:00PM (peak lunch-time period) and 4:00PM to 7:00PM (peak dinner-time period) on Saturday, April 8, 2017 and Tuesday, April 11, 2017 at the following three locations:

- 2249 N. Tustin Street, Orange, CA 92865
- 26801 Aliso Creek Road, Aliso Viejo, CA 92656
- 23971 El Toro Road, Laguna Hills, CA 92653

The vehicular queues observed at the three sites were recorded at 1-minute intervals between; 1) the pick-up window and the menu/order board, 2) the menu/order board to the drive-thru entrance, and 3) the drive-thru entrance to the end of the spillover queue (if necessary). The results of the surveys are included in ***Appendix A*** along with the existing aerial map for each location.

Tables 1 and ***2*** summarize the Queue Frequency that was observed at the three existing Raising Cane's locations for weekend (Saturday) and weekday peak periods, respectively. Our evaluation of this data indicates that on average during the weekend peak periods, an average queue of 4 vehicles in the drive-through lane can be expected, with an 85th percentile queue of approximately 8 vehicles, and a 95th percentile queue of approximately 12 vehicles. Similarly, our evaluation of this data also indicates that on average during the weekday peak periods, an average queue of 4 vehicles in the drive-through lane can be expected, with an 85th percentile queue of approximately 8 vehicles, and a 95th percentile queue of approximately 10 vehicles.

The 85th queue represents the number of vehicles that can be expected in the drive-through lane during the peak period, and indicates that 85 percent of the drive-through customers will wait in a line no longer than 8 vehicles; 15 percent of the customers will wait in a queue of 9 cars or more. Whereas the 95th queue indicates that 95 percent of the drive-through customers will wait in a line no longer than 12 vehicles; 5 percent of the customers will wait in a queue of 13 cars or more. Please note that the 85th percentile "criteria" is the design standard typically used in the traffic engineering profession.

LINSCOTT LAW & GREENSPAN engineers

The results of our queuing study indicate that the distance between the proposed entry of the drive-through lane and the pick-up window of the proposed Project is of sufficient length and can accommodate the peak stacking requirements of proposed restaurant. ***Figure 4*** illustrates the drive-through lane storage capacity and projected queues for the 85th and 95th percentile needs for the site.

As shown in *Figure 4*, the drive-through lane for the proposed Project has a storage capacity of fourteen (14) vehicles without encroaching into east-west drive aisle which motorist will utilize to access the drive-through lane; which includes a seven (7) vehicle storage capacity between the pick-up window and the menu/order board and an additional seven (7) vehicle storage capacity between the menu/order board and the drive-through entrance. As such, the drive-through lane is expected to fully accommodate the projected Project queue length of eight (8) vehicles, with an excess storage capacity to accommodate an additional six (6) vehicles. Therefore, the vast majority of the expected queues can be accommodated without interfering with internal circulation or causing congestion on the east-west drive aisle.

CONCLUSION

The 85th queue represents the maximum number of vehicles that can be expected in the drive-through lane during the peak period, and indicates that 85 percent of the drive-through customers will wait in a line no longer than 8 vehicles; 15 percent of the customers will wait in a queue of 9 cars or more. The drive-through lane provides storage for approximately fourteen (14) vehicles without encroaching into east-west drive aisle which motorist will utilize to access the drive-through lane. Therefore, the expected queues can be accommodated without interfering with internal circulation or causing congestion on the east-west drive aisle.

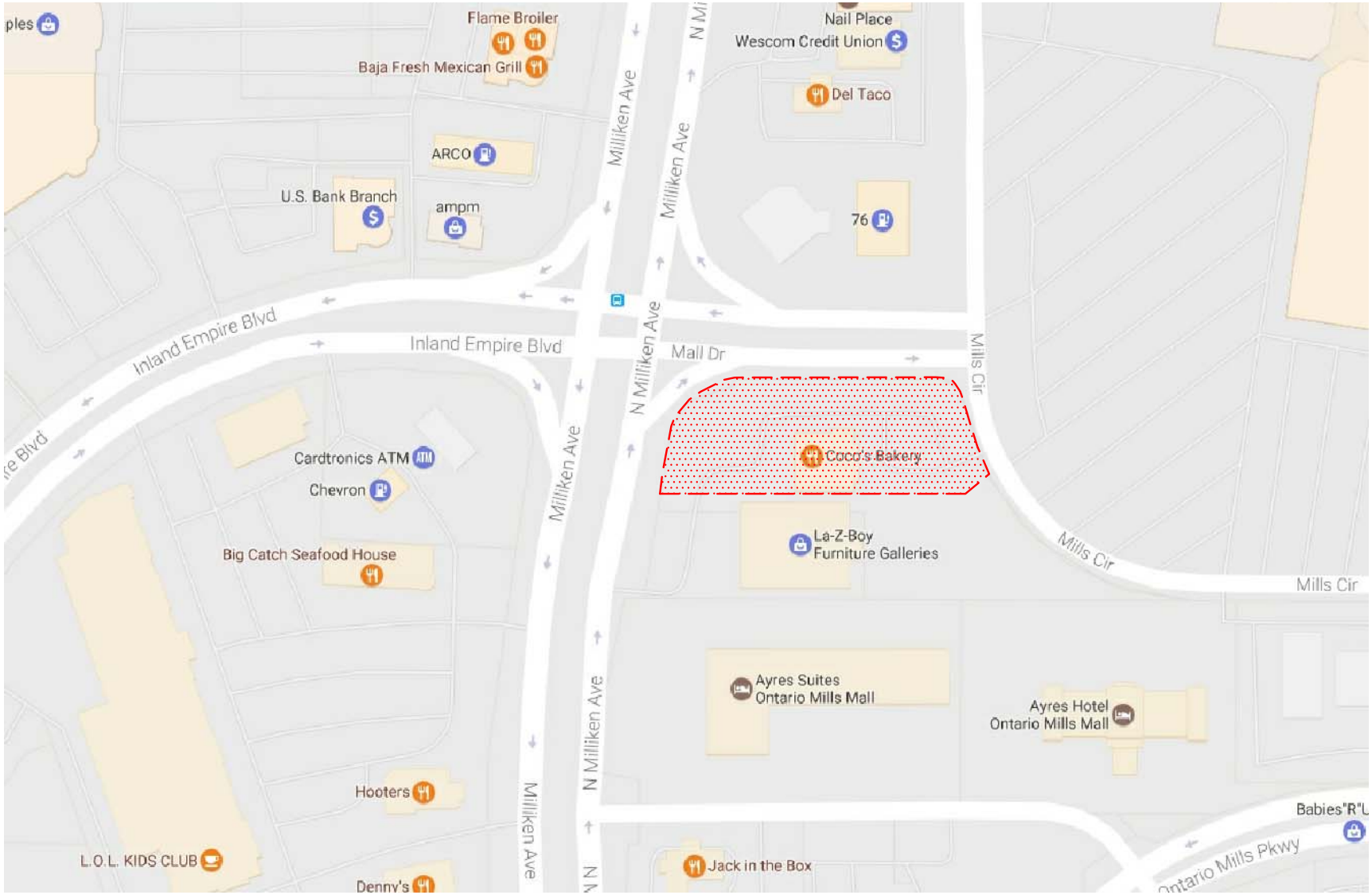
We appreciate the opportunity to prepare this traffic analysis. Should you have any questions regarding this analysis, please call us at (949) 825-6175.

Sincerely,

Linscott, Law & Greenspan, Engineers

Richard E. Barretto, P.E.
Principal

cc: Shane S. Green, P.E., Transportation Engineer III
Attachments



n:\3800\2173810 – raising cane's, ontario\dwg\3810 f-1.dwg LDP 16:39:24 04-19-2017 milano

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N NO SCALE

SOURCE: GOOGLE

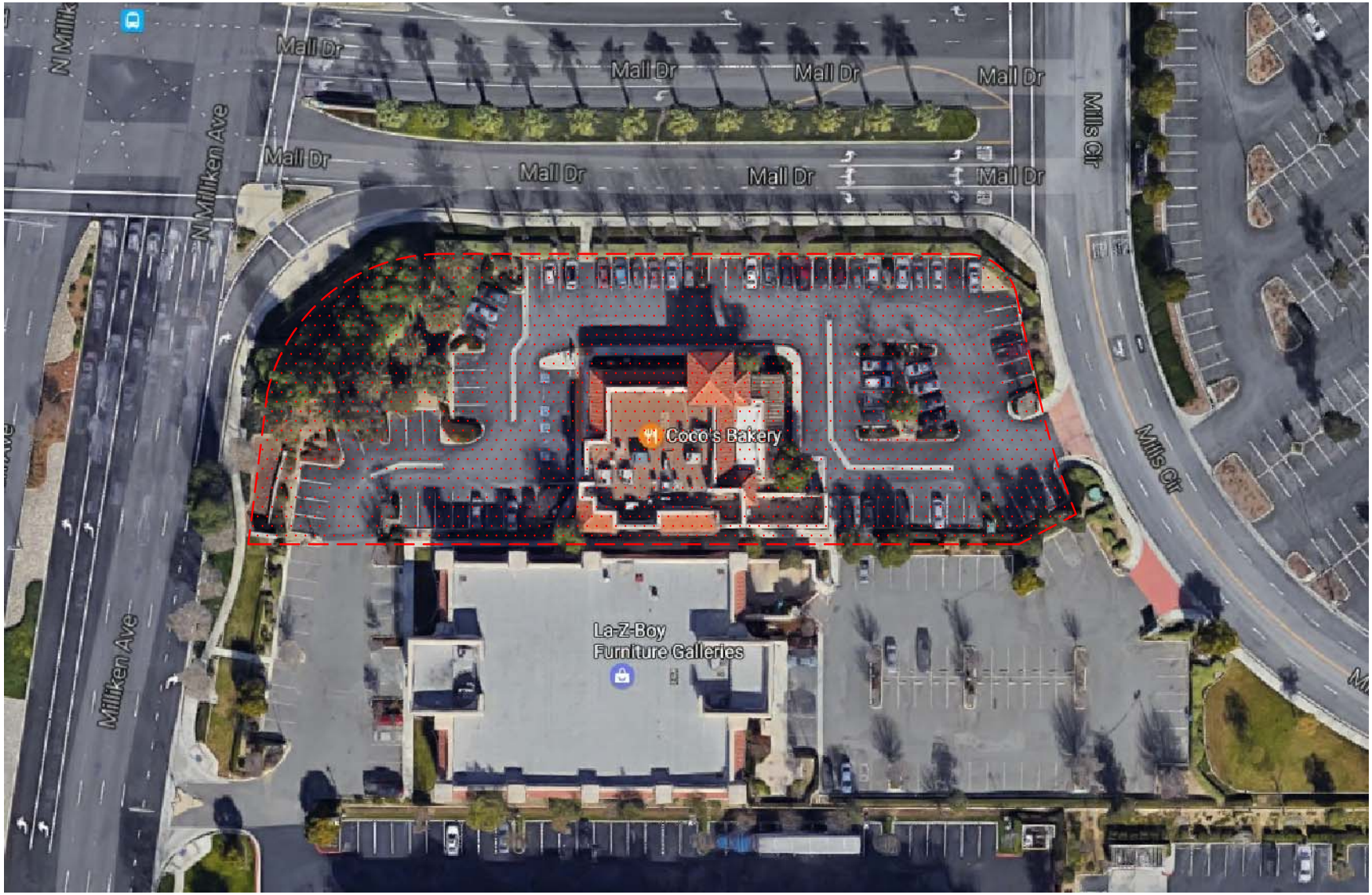
KEY

= PROJECT SITE

FIGURE 1

VICINITY MAP

RAISING CANE'S, ONTARIO



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

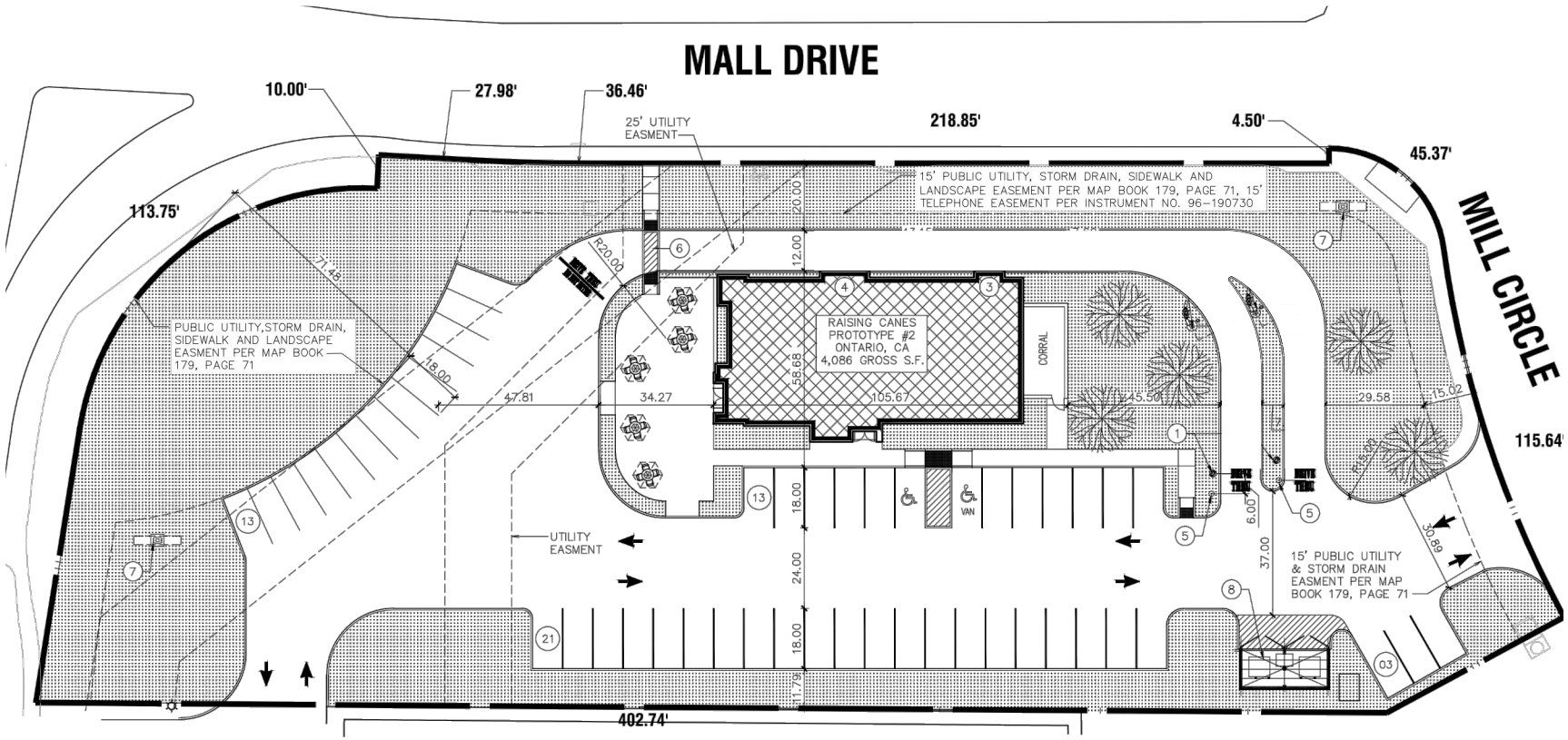
KEY

= PROJECT SITE

FIGURE 2

EXISTING AERIAL SITE

RAISING CANE'S, ONTARIO



n:\3800\2173810 - raising cane's, ontario\dwg\3810 f-3.dwg LDP 12:17:50 04-18-2017 aguilar

LINSCOTT LAW & GREENSPAN engineers

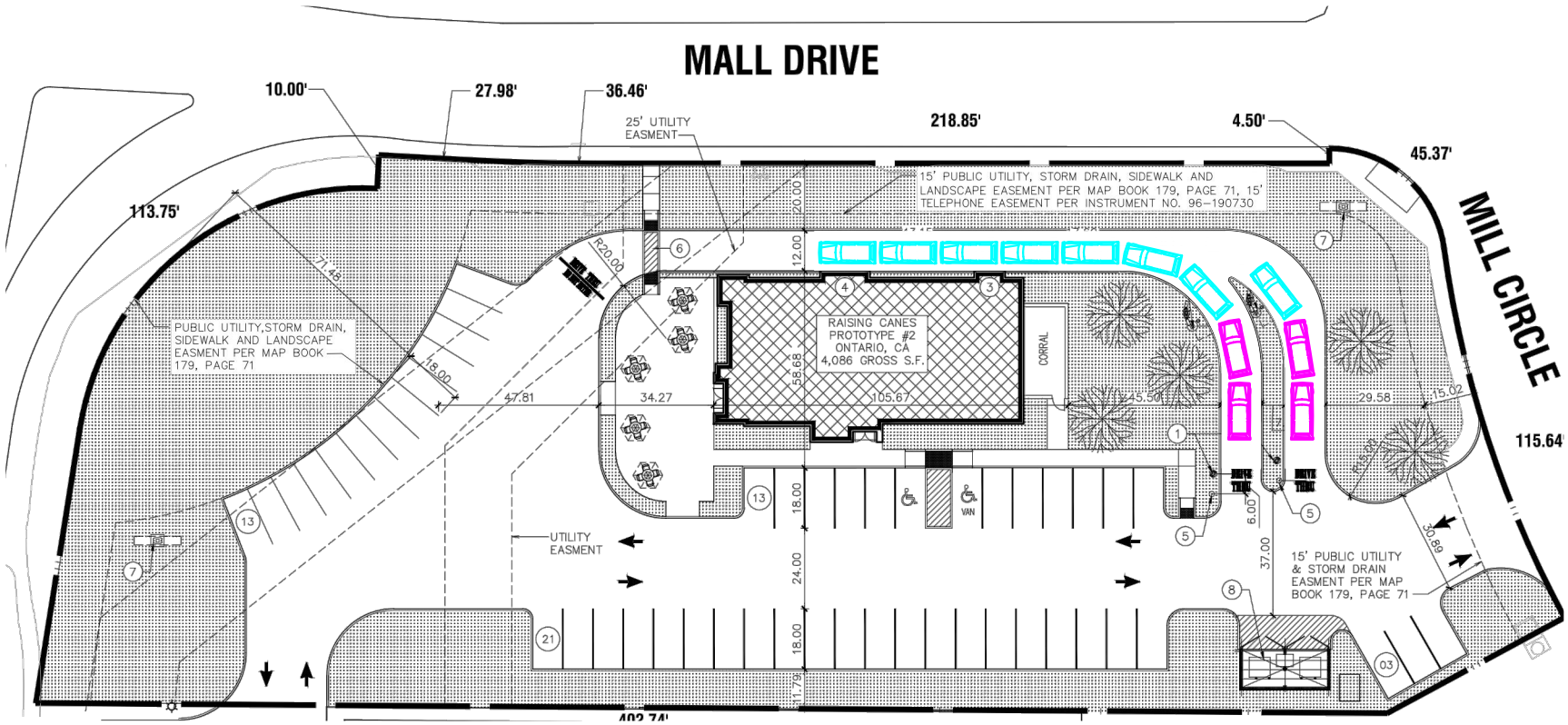
N NO SCALE

SOURCE: PM DESIGN

FIGURE 3

SITE PLAN

RAISING CANE'S, ONTARIO



n:\3800\2173810 - raising cane's, ontario\dwg\3810 f-4.dwg LDP 16:10:12 04-19-2017 milano

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: PM DESIGN

KEY

= 85% QUEUE (8 CARS)

= 95% QUEUE (12 CARS)

FIGURE 4

PROPOSED QUEUING LAYOUT

RAISING CANE'S, ONTARIO

LINSCOTT LAW & GREENSPAN engineers

TABLE 1
WEEKEND QUEUING ANALYSIS SUMMARY[1]

Queue Length (Vehicles)	Queue Frequency of Vehicles Observed				Cumulative	
	2249 N. Tustin Street	26801 Aliso Creek Road	23971 El Toro Road	Total	Frequency	Percentage
0	13	24	32	69	**69**	**6.4%**
1	15	70	18	103	**172**	**15.9%**
2	22	74	36	132	**304**	**28.1%**
3	45	76	49	170	**474**	**43.9%**
4	41	43	57	141	**615**	**56.9%**
5	34	27	44	105	**720**	**66.7%**
6	23	18	40	81	**801**	**74.2%**
7	33	17	30	80	**881**	**81.6%**
8	20	9	29	58	**939**	**86.9%**
9	18	1	10	29	**968**	**89.6%**
10	17	1	9	27	**995**	**92.1%**
11	22	0	6	28	**1,023**	**94.7%**
12	18	0	0	18	**1,041**	**96.4%**
13	13	0	0	13	**1,054**	**97.6%**
14	13	0	0	13	**1,067**	**98.8%**
15	6	0	0	6	**1,073**	**99.4%**
16	4	0	0	4	**1,077**	**99.7%**
17	2	0	0	2	**1,079**	**99.9%**
18	1	0	0	1	**1,080**	**100.0%**
Total	**360**	**360**	**360**	**1,080**	**--**	**--**
Average	**6.0**	**3.0**	**4.0**	**4.0**	**--**	**--**
85th Percentile	**12.0**	**5.0**	**7.1**	**8.0**	**--**	**--**
95th Percentile	**14.0**	**7.0**	**9.0**	**12.0**	**--**	**--**

[1] Source: Queuing surveys conducted every minute, between the hours of 11:00AM to 2:00PM and 4:00PM to 7:00PM, by National Data and Surveying Services on Saturday, April 8, 2017.

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TABLE 2
WEEKDAY QUEUING ANALYSIS SUMMARY[2]

Queue Length (Vehicles)	Queue Frequency of Vehicles Observed				Cumulative	
	2249 N. Tustin Street	26801 Aliso Creek Road	23971 El Toro Road	Total	Frequency	Percentage
0	14	19	22	55	**55**	**5.1%**
1	21	60	30	111	**166**	**15.4%**
2	23	58	48	129	**295**	**27.3%**
3	29	73	53	155	**450**	**41.7%**
4	37	51	39	127	**577**	**53.4%**
5	38	40	40	118	**695**	**64.4%**
6	53	22	41	116	**811**	**75.1%**
7	30	17	30	77	**888**	**82.2%**
8	40	12	27	79	**967**	**89.5%**
9	23	7	17	47	**1,014**	**93.9%**
10	12	1	13	26	**1,040**	**96.3%**
11	8	0	0	8	**1,048**	**97.0%**
12	7	0	0	7	**1,055**	**97.7%**
13	6	0	0	6	**1,061**	**98.2%**
14	5	0	0	5	**1,066**	**98.7%**
15	5	0	0	5	**1,071**	**99.2%**
16	5	0	0	5	**1,076**	**99.6%**
17	1	0	0	1	**1,077**	**99.7%**
18	2	0	0	2	**1,079**	**99.9%**
19	1	0	0	1	**1,080**	**100.0%**
Total	**360**	**360**	**360**	**1,080**	**--**	**--**
Average	**6.0**	**3.0**	**4.0**	**4.0**	**--**	**--**
85th Percentile	**9.0**	**6.0**	**8.0**	**8.0**	**--**	**--**
95th Percentile	**14.0**	**8.0**	**9.0**	**10.0**	**--**	**--**

[2] Source: Queuing surveys conducted every minute, between the hours of 11:00AM to 2:00PM and 4:00PM to 7:00PM, by National Data and Surveying Services on Tuesday, April 11, 2017.

APPENDIX A

QUEUING DATA

Vicinity Map

2249 N. Tustin Street, Orange, CA 92685

KEY:

= Count Location

Prepared by National Data & Surveying Services

MAX Queue Study

Location: 2249 N Tustin St
City: Orange,CA

Day: Saturday
Date: 4/8/2017

Time	Queue #1	Queue #2	Queue #3
11:00	0	0	0
11:01	0	0	0
11:02	0	1	0
11:03	1	0	0
11:04	0	1	0
11:05	1	1	0
11:06	1	1	0
11:07	0	1	0
11:08	1	1	0
11:09	2	1	0
11:10	1	2	0
11:11	1	1	0
11:12	2	1	0
11:13	2	1	0
11:14	3	2	0
11:15	3	1	0
11:16	3	2	0
11:17	3	1	0
11:18	3	0	0
11:19	2	0	0
11:20	1	2	0
11:21	4	1	0
11:22	3	1	0
11:23	4	2	0
11:24	4	0	0
11:25	4	0	0
11:26	3	0	0
11:27	2	2	0
11:28	2	2	0
11:29	2	1	0
11:30	2	0	0
11:31	1	0	0
11:32	2	0	0
11:33	2	0	0
11:34	2	1	0
11:35	2	1	0
11:36	3	1	0
11:37	4	1	0
11:38	3	1	0
11:39	2	1	0
11:40	0	0	0
11:41	0	0	0
11:42	1	0	0
11:43	1	1	0
11:44	1	0	0
11:45	2	2	0
11:46	3	1	0
11:47	3	1	0
11:48	3	1	0
11:49	2	1	0
11:50	1	1	0
11:51	2	1	0
11:52	2	2	0
11:53	1	1	0
11:54	3	2	1
11:55	3	2	0
11:56	2	1	0
11:57	2	1	0
11:58	1	3	0
11:59	1	2	0

Time	Queue #1	Queue #2	Queue #3
12:00	3	2	0
12:01	3	1	0
12:02	3	1	0
12:03	2	1	0
12:04	1	1	0
12:05	2	3	0
12:06	3	2	1
12:07	2	3	2
12:08	2	3	1
12:09	4	3	1
12:10	5	3	0
12:11	5	3	0
12:12	5	3	0
12:13	5	2	0
12:14	5	2	0
12:15	4	1	0
12:16	4	1	0
12:17	3	0	0
12:18	2	0	0
12:19	1	2	0
12:20	1	2	0
12:21	3	1	0
12:22	2	1	0
12:23	2	1	0
12:24	2	0	0
12:25	2	1	0
12:26	2	2	0
12:27	2	2	0
12:28	2	3	0
12:29	1	3	0
12:30	2	1	0
12:31	2	1	0
12:32	1	1	0
12:33	1	2	0
12:34	3	1	0
12:35	2	1	0
12:36	3	3	1
12:37	2	2	0
12:38	2	2	0
12:39	3	1	0
12:40	4	2	0
12:41	3	3	0
12:42	3	3	1
12:43	4	3	2
12:44	4	3	0
12:45	4	2	2
12:46	4	3	3
12:47	3	3	1
12:48	4	3	1
12:49	4	1	0
12:50	3	3	0
12:51	2	3	0
12:52	3	3	0
12:53	3	1	0
12:54	3	2	0
12:55	2	1	0
12:56	2	2	0
12:57	2	1	0
12:58	2	1	0
12:59	2	2	0

Time	Queue #1	Queue #2	Queue #3
13:00	2	2	0
13:01	3	2	0
13:02	1	1	0
13:03	2	1	0
13:04	2	1	0
13:05	3	1	1
13:06	3	1	3
13:07	3	1	3
13:08	3	1	10
13:09	4	4	10
13:10	4	3	10
13:11	2	4	10
13:12	5	4	8
13:13	5	4	4
13:14	4	4	6
13:15	4	3	7
13:16	5	3	7
13:17	3	3	7
13:18	3	4	6
13:19	4	4	4
13:20	4	4	2
13:21	3	3	2
13:22	3	3	1
13:23	3	2	1
13:24	2	3	1
13:25	4	3	2
13:26	3	3	1
13:27	3	3	0
13:28	1	3	4
13:29	2	4	4
13:30	3	3	2
13:31	3	3	3
13:32	4	4	8
13:33	3	4	8
13:34	3	4	7
13:35	3	3	8
13:36	2	4	5
13:37	2	4	5
13:38	4	3	3
13:39	4	4	4
13:40	4	4	2
13:41	3	4	3
13:42	3	4	4
13:43	3	4	6
13:44	4	4	6
13:45	5	4	5
13:46	4	4	7
13:47	5	4	7
13:48	4	4	7
13:49	4	4	6
13:50	4	4	4
13:51	5	3	6
13:52	3	4	5
13:53	3	4	5
13:54	3	4	7
13:55	3	4	5
13:56	4	4	3
13:57	4	4	0
13:58	4	4	5
13:59	5	3	2

Time	Queue #1	Queue #2	Queue #3
16:00	3	2	1
16:01	3	1	0
16:02	2	2	0
16:03	1	2	0
16:04	2	3	0
16:05	3	3	0
16:06	3	3	0
16:07	3	3	0
16:08	3	3	0
16:09	2	2	0
16:10	2	3	0
16:11	3	2	0
16:12	3	3	0
16:13	3	4	0
16:14	3	4	0
16:15	4	3	0
16:16	3	2	0
16:17	4	0	0
16:18	2	5	0
16:19	4	5	0
16:20	4	4	3
16:21	4	4	2
16:22	4	4	1
16:23	5	4	1
16:24	3	4	0
16:25	2	4	0
16:26	3	4	0
16:27	4	4	0
16:28	4	3	0
16:29	6	2	0
16:30	3	4	0
16:31	3	4	0
16:32	2	4	0
16:33	2	3	0
16:34	2	3	0
16:35	2	3	0
16:36	2	4	0
16:37	1	3	0
16:38	1	3	0
16:39	3	4	0
16:40	0	3	0
16:41	0	2	0
16:42	1	0	0
16:43	1	0	0
16:44	2	1	0
16:45	2	1	0
16:46	2	1	0
16:47	2	1	0
16:48	2	1	0
16:49	2	1	0
16:50	0	0	0
16:51	0	0	0
16:52	4	0	0
16:53	2	3	0
16:54	0	0	0
16:55	0	0	0
16:56	1	0	0
16:57	1	1	0
16:58	1	1	0
16:59	2	0	0

Time	Queue #1	Queue #2	Queue #3
17:00	2	1	0
17:01	0	1	0
17:02	1	0	0
17:03	1	1	0
17:04	2	1	0
17:05	3	0	0
17:06	3	2	1
17:07	1	3	0
17:08	2	3	0
17:09	2	3	0
17:10	3	2	0
17:11	2	4	1
17:12	4	3	0
17:13	2	2	0
17:14	1	4	0
17:15	2	5	0
17:16	5	3	0
17:17	4	3	0
17:18	2	3	0
17:19	3	1	0
17:20	1	2	0
17:21	2	1	0
17:22	0	1	0
17:23	0	0	0
17:24	0	1	0
17:25	0	0	0
17:26	0	0	0
17:27	0	0	0
17:28	0	0	0
17:29	1	0	0
17:30	1	1	0
17:31	2	2	0
17:32	2	2	0
17:33	3	2	0
17:34	3	2	0
17:35	3	2	0
17:36	3	2	0
17:37	2	4	2
17:38	3	3	1
17:39	4	2	0
17:40	3	2	0
17:41	3	2	1
17:42	3	2	0
17:43	4	3	0
17:44	4	3	0
17:45	3	4	0
17:46	4	3	0
17:47	4	4	3
17:48	4	3	2
17:49	6	3	2
17:50	4	3	1
17:51	4	3	1
17:52	5	3	0
17:53	4	3	0
17:54	5	3	0
17:55	3	2	4
17:56	4	3	6
17:57	4	3	7
17:58	4	3	4
17:59	5	2	6

Time	Queue #1	Queue #2	Queue #3
18:00	4	5	6
18:01	3	3	6
18:02	5	4	5
18:03	4	3	3
18:04	3	3	1
18:05	4	4	1
18:06	5	4	3
18:07	4	3	4
18:08	3	2	4
18:09	3	4	4
18:10	4	4	4
18:11	3	4	6
18:12	3	3	7
18:13	4	4	7
18:14	3	3	5
18:15	3	3	6
18:16	1	3	6
18:17	2	2	5
18:18	2	4	5
18:19	1	4	5
18:20	2	3	6
18:21	3	3	5
18:22	4	4	8
18:23	4	3	3
18:24	3	2	4
18:25	3	3	5
18:26	5	4	4
18:27	5	3	3
18:28	6	3	2
18:29	5	3	4
18:30	5	3	4
18:31	4	3	6
18:32	4	3	5
18:33	4	3	3
18:34	3	3	2
18:35	4	3	1
18:36	3	4	2
18:37	4	3	3
18:38	2	4	4
18:39	2	4	3
18:40	2	4	3
18:41	2	4	3
18:42	2	4	5
18:43	2	4	5
18:44	3	4	4
18:45	3	3	3
18:46	3	4	2
18:47	3	4	0
18:48	3	4	2
18:49	3	4	3
18:50	4	4	3
18:51	3	4	5
18:52	4	3	5
18:53	5	3	4
18:54	5	4	5
18:55	3	3	6
18:56	4	3	6
18:57	4	3	6
18:58	3	3	6
18:59	3	4	4

Prepared by National Data & Surveying Services

MAX Queue Study

Location: 2249 N Tustin St
City: Orange,CA

Day: Tuesday
Date: 4/11/2017

Time	Queue #1	Queue #2	Queue #3
11:00	5	3	0
11:01	4	3	0
11:02	4	2	0
11:03	5	1	0
11:04	5	0	0
11:05	5	2	0
11:06	5	3	0
11:07	5	3	0
11:08	5	4	0
11:09	4	4	0
11:10	5	2	0
11:11	5	3	0
11:12	4	2	0
11:13	4	2	0
11:14	4	2	0
11:15	4	2	0
11:16	4	2	0
11:17	4	2	0
11:18	3	2	0
11:19	1	3	0
11:20	2	3	0
11:21	3	3	0
11:22	3	2	0
11:23	3	0	0
11:24	3	0	0
11:25	3	0	0
11:26	1	0	0
11:27	1	1	0
11:28	0	1	0
11:29	0	1	0
11:30	1	1	0
11:31	1	1	0
11:32	1	1	0
11:33	2	2	0
11:34	1	4	0
11:35	2	4	0
11:36	4	2	0
11:37	4	2	0
11:38	3	3	0
11:39	3	3	0
11:40	3	3	1
11:41	3	3	2
11:42	4	4	0
11:43	5	3	0
11:44	5	3	0
11:45	5	3	1
11:46	5	3	1
11:47	5	3	0
11:48	5	3	1
11:49	5	3	1
11:50	4	3	1
11:51	4	3	0
11:52	4	3	0
11:53	4	2	0
11:54	3	3	0
11:55	4	1	0
11:56	3	3	0
11:57	5	3	0
11:58	5	3	0
11:59	3	3	1

Time	Queue #1	Queue #2	Queue #3
12:00	2	3	1
12:01	3	3	1
12:02	3	4	2
12:03	3	3	1
12:04	4	3	3
12:05	5	4	0
12:06	5	3	2
12:07	4	4	1
12:08	4	3	2
12:09	5	4	1
12:10	4	3	1
12:11	4	3	1
12:12	3	2	0
12:13	2	2	0
12:14	2	2	2
12:15	3	2	2
12:16	3	2	0
12:17	4	2	0
12:18	1	2	0
12:19	1	1	0
12:20	0	1	0
12:21	1	0	0
12:22	2	2	0
12:23	3	0	0
12:24	2	1	0
12:25	1	0	0
12:26	0	1	0
12:27	1	0	0
12:28	0	0	0
12:29	2	2	0
12:30	4	2	0
12:31	4	0	0
12:32	1	3	0
12:33	2	2	0
12:34	2	2	0
12:35	4	3	0
12:36	5	2	0
12:37	5	3	0
12:38	4	3	1
12:39	5	3	1
12:40	5	3	1
12:41	5	3	1
12:42	2	3	1
12:43	3	2	0
12:44	4	2	0
12:45	4	0	0
12:46	4	1	0
12:47	1	2	0
12:48	1	2	0
12:49	2	1	0
12:50	3	2	0
12:51	3	3	0
12:52	3	3	1
12:53	3	3	2
12:54	4	3	2
12:55	4	3	4
12:56	5	4	2
12:57	4	3	1
12:58	3	3	0
12:59	4	2	0

Time	Queue #1	Queue #2	Queue #3
13:00	4	2	0
13:01	3	4	0
13:02	3	3	1
13:03	2	3	1
13:04	3	4	0
13:05	2	4	0
13:06	2	4	2
13:07	5	4	1
13:08	4	3	2
13:09	4	3	3
13:10	3	3	2
13:11	3	2	1
13:12	3	3	1
13:13	3	3	0
13:14	3	2	0
13:15	5	1	0
13:16	4	0	0
13:17	3	1	0
13:18	2	0	0
13:19	1	2	0
13:20	0	1	0
13:21	0	0	0
13:22	0	1	0
13:23	1	1	0
13:24	2	2	0
13:25	2	2	0
13:26	2	1	0
13:27	3	0	0
13:28	2	0	0
13:29	0	0	0
13:30	0	0	0
13:31	0	0	0
13:32	3	3	0
13:33	3	3	1
13:34	4	4	1
13:35	3	3	0
13:36	2	3	1
13:37	3	2	0
13:38	4	2	0
13:39	4	1	0
13:40	3	0	0
13:41	3	1	0
13:42	1	1	0
13:43	1	0	0
13:44	0	1	0
13:45	1	3	1
13:46	2	3	0
13:47	4	3	0
13:48	4	1	0
13:49	4	1	0
13:50	3	2	0
13:51	4	2	0
13:52	4	0	0
13:53	4	1	0
13:54	3	1	0
13:55	2	0	0
13:56	2	2	0
13:57	2	1	0
13:58	3	0	0
13:59	3	1	0

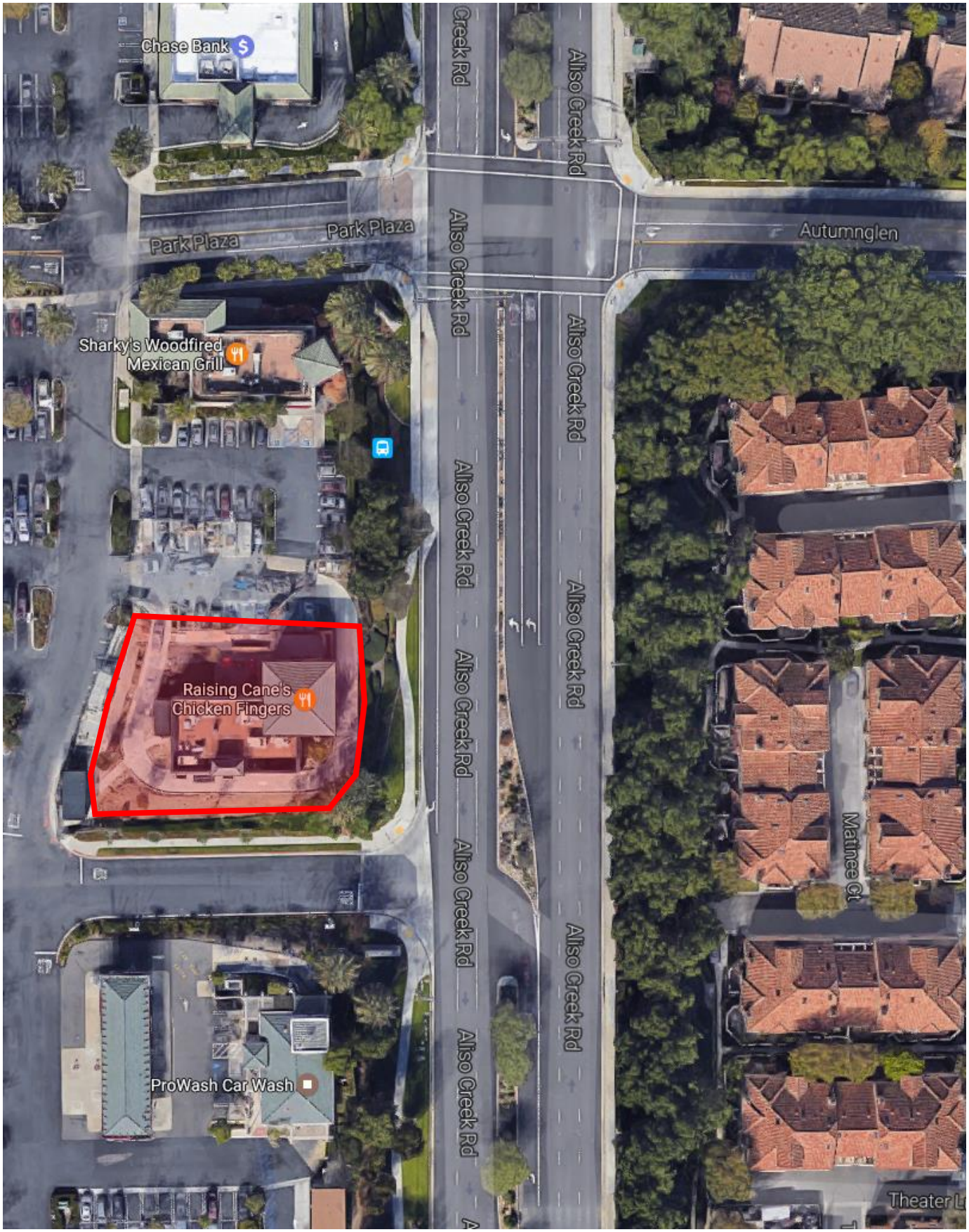
Time	Queue #1	Queue #2	Queue #3
16:00	1	3	0
16:01	2	3	0
16:02	2	2	0
16:03	1	1	0
16:04	2	2	0
16:05	2	3	0
16:06	2	2	0
16:07	2	2	0
16:08	2	2	0
16:09	3	3	0
16:10	3	2	0
16:11	2	3	0
16:12	1	1	0
16:13	1	3	0
16:14	4	2	0
16:15	5	2	0
16:16	3	2	0
16:17	3	2	0
16:18	3	3	0
16:19	4	2	0
16:20	4	3	0
16:21	4	2	0
16:22	4	1	0
16:23	2	3	0
16:24	2	2	0
16:25	2	1	0
16:26	0	0	0
16:27	0	0	0
16:28	2	1	0
16:29	2	1	0
16:30	0	0	0
16:31	0	0	0
16:32	0	0	0
16:33	1	0	0
16:34	1	0	0
16:35	0	0	0
16:36	0	0	0
16:37	0	0	0
16:38	0	3	0
16:39	2	3	0
16:40	2	2	0
16:41	3	3	0
16:42	2	1	0
16:43	1	1	0
16:44	2	1	0
16:45	2	0	0
16:46	2	1	0
16:47	1	0	0
16:48	0	2	0
16:49	1	1	0
16:50	2	0	0
16:51	0	0	0
16:52	0	1	0
16:53	1	1	0
16:54	1	2	0
16:55	1	0	0
16:56	2	0	0
16:57	2	1	0
16:58	3	3	0
16:59	3	3	0

Time	Queue #1	Queue #2	Queue #3
17:00	4	3	0
17:01	3	3	1
17:02	2	2	0
17:03	3	2	0
17:04	4	4	2
17:05	3	3	2
17:06	3	3	1
17:07	3	3	2
17:08	2	3	2
17:09	3	3	1
17:10	1	3	0
17:11	0	3	1
17:12	2	3	1
17:13	4	1	0
17:14	4	0	0
17:15	4	0	0
17:16	3	0	0
17:17	2	2	0
17:18	1	2	0
17:19	1	1	1
17:20	3	3	0
17:21	3	2	0
17:22	3	1	0
17:23	4	1	0
17:24	5	1	0
17:25	5	2	0
17:26	4	1	0
17:27	4	1	0
17:28	3	1	0
17:29	2	0	0
17:30	1	0	0
17:31	1	0	0
17:32	1	0	0
17:33	2	0	0
17:34	0	1	0
17:35	1	2	0
17:36	2	0	0
17:37	1	1	0
17:38	2	1	0
17:39	2	2	0
17:40	2	3	1
17:41	3	3	2
17:42	4	3	0
17:43	4	2	0
17:44	5	2	0
17:45	5	2	0
17:46	5	1	0
17:47	2	3	0
17:48	3	3	0
17:49	3	3	0
17:50	2	3	0
17:51	3	4	1
17:52	2	3	0
17:53	3	3	2
17:54	4	3	2
17:55	4	2	2
17:56	4	3	4
17:57	4	3	3
17:58	3	3	3
17:59	3	3	4

Time	Queue #1	Queue #2	Queue #3
18:00	4	4	5
18:01	4	4	4
18:02	3	3	4
18:03	3	4	4
18:04	4	4	3
18:05	4	3	5
18:06	4	4	4
18:07	5	3	2
18:08	5	2	1
18:09	5	3	0
18:10	4	4	0
18:11	4	4	0
18:12	4	3	1
18:13	4	3	1
18:14	4	3	2
18:15	4	3	1
18:16	3	3	6
18:17	3	4	4
18:18	2	4	2
18:19	3	4	2
18:20	3	4	2
18:21	2	4	2
18:22	2	4	8
18:23	3	4	6
18:24	4	4	5
18:25	5	4	8
18:26	6	4	8
18:27	6	4	4
18:28	5	4	10
18:29	5	4	9
18:30	4	4	8
18:31	5	3	8
18:32	4	4	8
18:33	4	4	7
18:34	3	4	7
18:35	3	4	7
18:36	3	4	9
18:37	3	4	8
18:38	3	4	8
18:39	4	3	7
18:40	4	3	6
18:41	4	3	6
18:42	4	4	8
18:43	4	4	7
18:44	4	4	7
18:45	4	4	4
18:46	5	3	2
18:47	5	4	3
18:48	5	5	3
18:49	4	4	2
18:50	4	3	1
18:51	4	3	1
18:52	5	3	0
18:53	4	3	1
18:54	4	3	2
18:55	4	3	2
18:56	5	3	1
18:57	5	3	3
18:58	4	3	4
18:59	4	3	5

Vicinity Map

26081 Aliso Creek Road, Aliso Viejo, CA 92656



KEY:

= Count Location

Prepared by National Data & Surveying Services

MAX Queue Study

Location: 26801 Aliso Creek Rd
City: Aliso Viejo

Day: Saturday
Date: 4/8/2017

Time	Queue #1	Queue #2	Queue #3
11:00	0	0	0
11:01	0	0	0
11:02	0	0	0
11:03	0	0	0
11:04	0	0	0
11:05	0	1	0
11:06	1	0	0
11:07	0	0	0
11:08	0	0	0
11:09	0	1	0
11:10	2	0	0
11:11	1	0	0
11:12	0	0	0
11:13	0	0	0
11:14	0	0	0
11:15	1	0	0
11:16	0	1	0
11:17	1	0	0
11:18	1	0	0
11:19	1	1	0
11:20	1	1	0
11:21	2	0	0
11:22	2	0	0
11:23	1	0	0
11:24	0	1	0
11:25	1	1	0
11:26	2	0	0
11:27	1	0	0
11:28	1	0	0
11:29	0	1	0
11:30	1	2	0
11:31	2	1	0
11:32	1	1	0
11:33	2	0	0
11:34	1	1	0
11:35	2	2	0
11:36	3	0	0
11:37	2	1	0
11:38	2	0	0
11:39	1	1	0
11:40	1	2	0
11:41	2	1	0
11:42	1	1	0
11:43	1	1	0
11:44	0	1	0
11:45	0	1	0
11:46	1	0	0
11:47	1	0	0
11:48	0	1	0
11:49	1	0	0
11:50	1	1	0
11:51	1	1	0
11:52	2	1	0
11:53	2	0	0
11:54	1	0	0
11:55	1	0	0
11:56	0	0	0
11:57	0	1	0
11:58	1	2	0
11:59	2	1	0

Time	Queue #1	Queue #2	Queue #3
12:00	1	2	0
12:01	2	0	0
12:02	1	0	0
12:03	1	0	0
12:04	1	1	0
12:05	2	0	0
12:06	1	0	0
12:07	1	0	0
12:08	0	2	0
12:09	1	1	0
12:10	1	1	0
12:11	2	1	0
12:12	3	0	0
12:13	2	0	0
12:14	1	3	0
12:15	1	2	0
12:16	3	1	0
12:17	4	1	0
12:18	3	2	0
12:19	3	3	0
12:20	2	2	0
12:21	2	1	0
12:22	2	2	0
12:23	2	4	0
12:24	4	3	0
12:25	4	2	0
12:26	4	1	0
12:27	3	1	0
12:28	3	1	0
12:29	2	0	0
12:30	2	1	0
12:31	1	2	0
12:32	1	2	0
12:33	3	2	0
12:34	4	1	0
12:35	4	1	0
12:36	3	0	0
12:37	2	0	0
12:38	1	0	0
12:39	0	0	0
12:40	0	0	0
12:41	0	0	0
12:42	1	0	0
12:43	1	0	0
12:44	1	0	0
12:45	1	3	0
12:46	2	2	0
12:47	1	2	0
12:48	2	1	0
12:49	3	0	0
12:50	2	1	0
12:51	1	0	0
12:52	0	0	0
12:53	0	0	0
12:54	0	0	0
12:55	1	1	0
12:56	2	0	0
12:57	2	0	0
12:58	1	2	0
12:59	2	2	0

Time	Queue #1	Queue #2	Queue #3
13:00	3	1	0
13:01	4	3	0
13:02	3	3	0
13:03	3	3	0
13:04	3	3	0
13:05	4	4	0
13:06	4	2	0
13:07	4	3	0
13:08	4	2	0
13:09	3	1	0
13:10	3	0	0
13:11	2	1	0
13:12	1	0	0
13:13	1	1	0
13:14	1	1	0
13:15	1	0	0
13:16	0	0	0
13:17	1	2	0
13:18	2	1	0
13:19	1	2	0
13:20	2	2	0
13:21	2	1	0
13:22	2	0	0
13:23	1	1	0
13:24	2	2	0
13:25	2	4	0
13:26	3	4	0
13:27	4	3	0
13:28	2	4	0
13:29	4	4	0
13:30	3	4	1
13:31	4	4	1
13:32	3	4	0
13:33	3	3	0
13:34	3	3	0
13:35	3	4	1
13:36	3	4	0
13:37	4	4	0
13:38	3	4	0
13:39	4	3	0
13:40	3	1	0
13:41	3	3	0
13:42	3	4	0
13:43	2	4	0
13:44	2	4	2
13:45	3	4	3
13:46	3	4	1
13:47	3	3	1
13:48	3	3	2
13:49	3	3	1
13:50	3	3	0
13:51	3	2	0
13:52	2	1	0
13:53	2	1	0
13:54	1	1	0
13:55	2	0	0
13:56	1	1	0
13:57	1	1	0
13:58	2	1	0
13:59	4	3	0

Time	Queue #1	Queue #2	Queue #3
16:00	0	0	0
16:01	1	0	0
16:02	1	1	0
16:03	2	1	0
16:04	3	1	0
16:05	3	0	0
16:06	3	0	0
16:07	2	0	0
16:08	3	0	0
16:09	2	0	0
16:10	2	1	0
16:11	3	0	0
16:12	2	1	0
16:13	2	0	0
16:14	1	0	0
16:15	1	0	0
16:16	1	1	0
16:17	2	0	0
16:18	1	1	0
16:19	1	1	0
16:20	1	1	0
16:21	1	0	0
16:22	1	1	0
16:23	1	0	0
16:24	0	0	0
16:25	0	1	0
16:26	1	0	0
16:27	1	0	0
16:28	0	3	0
16:29	2	1	0
16:30	1	2	0
16:31	3	1	0
16:32	2	2	0
16:33	3	0	0
16:34	2	1	0
16:35	3	1	0
16:36	2	0	0
16:37	1	0	0
16:38	0	1	0
16:39	1	0	0
16:40	1	2	0
16:41	3	0	0
16:42	2	2	0
16:43	2	3	0
16:44	2	1	0
16:45	3	1	0
16:46	3	0	0
16:47	3	0	0
16:48	1	1	0
16:49	2	1	0
16:50	3	0	0
16:51	2	1	0
16:52	2	1	0
16:53	3	1	0
16:54	4	1	0
16:55	4	2	0
16:56	4	1	0
16:57	4	1	0
16:58	4	1	0
16:59	4	1	0

Time	Queue #1	Queue #2	Queue #3
17:00	4	2	0
17:01	4	1	0
17:02	4	0	0
17:03	2	0	0
17:04	1	0	0
17:05	1	1	0
17:06	1	0	0
17:07	1	1	0
17:08	2	0	0
17:09	2	0	0
17:10	3	2	0
17:11	3	1	0
17:12	4	0	0
17:13	3	1	0
17:14	3	0	0
17:15	3	0	0
17:16	3	1	0
17:17	4	0	0
17:18	3	0	0
17:19	2	0	0
17:20	1	1	0
17:21	0	1	0
17:22	1	0	0
17:23	2	0	0
17:24	2	0	0
17:25	1	1	0
17:26	1	0	0
17:27	0	0	0
17:28	0	1	0
17:29	1	1	0
17:30	1	2	0
17:31	2	2	0
17:32	2	3	0
17:33	2	3	0
17:34	4	1	0
17:35	4	1	0
17:36	4	1	0
17:37	4	0	0
17:38	4	0	0
17:39	4	1	0
17:40	3	0	0
17:41	2	0	0
17:42	2	0	0
17:43	2	0	0
17:44	1	1	0
17:45	2	0	0
17:46	1	0	0
17:47	0	1	0
17:48	1	2	0
17:49	0	4	0
17:50	2	2	0
17:51	4	1	0
17:52	3	0	0
17:53	2	1	0
17:54	3	0	0
17:55	1	0	0
17:56	1	1	0
17:57	1	0	0
17:58	0	1	0
17:59	1	0	0

Time	Queue #1	Queue #2	Queue #3
18:00	1	1	0
18:01	1	2	0
18:02	2	2	0
18:03	4	0	0
18:04	3	2	0
18:05	3	2	0
18:06	4	2	0
18:07	3	1	0
18:08	4	0	0
18:09	2	0	0
18:10	1	0	0
18:11	0	0	0
18:12	1	0	0
18:13	2	1	0
18:14	1	1	0
18:15	2	0	0
18:16	0	1	0
18:17	1	0	0
18:18	1	0	0
18:19	1	1	0
18:20	2	1	0
18:21	3	0	0
18:22	1	1	0
18:23	1	2	0
18:24	2	0	0
18:25	2	1	0
18:26	1	0	0
18:27	0	1	0
18:28	2	2	0
18:29	2	1	0
18:30	1	0	0
18:31	1	0	0
18:32	0	0	0
18:33	0	1	0
18:34	1	2	0
18:35	2	2	0
18:36	3	0	0
18:37	2	2	0
18:38	1	2	0
18:39	2	0	0
18:40	1	2	0
18:41	2	3	0
18:42	2	2	0
18:43	4	1	0
18:44	4	4	0
18:45	2	4	1
18:46	3	4	0
18:47	3	4	0
18:48	3	4	0
18:49	2	3	0
18:50	3	1	0
18:51	3	0	0
18:52	1	0	0
18:53	0	0	0
18:54	0	1	0
18:55	1	0	0
18:56	0	1	0
18:57	1	2	0
18:58	2	1	0
18:59	3	1	0

Prepared by National Data & Surveying Services

MAX Queue Study

Location: 26801 Aliso Creek Rd
City: Aliso Viejo

Day: Tuesday
Date: 4/11/2017

Time	Queue #1	Queue #2	Queue #3
11:00	1	1	0
11:01	1	1	0
11:02	1	0	0
11:03	1	0	0
11:04	1	0	0
11:05	1	1	0
11:06	1	0	0
11:07	1	2	0
11:08	2	1	0
11:09	3	0	0
11:10	1	1	0
11:11	2	0	0
11:12	2	2	0
11:13	3	1	0
11:14	3	2	0
11:15	4	2	0
11:16	4	2	0
11:17	4	1	0
11:18	4	1	0
11:19	4	1	0
11:20	4	0	0
11:21	3	0	0
11:22	2	1	0
11:23	2	0	0
11:24	1	0	0
11:25	0	1	0
11:26	1	0	0
11:27	1	0	0
11:28	1	0	0
11:29	1	0	0
11:30	1	0	0
11:31	1	0	0
11:32	1	0	0
11:33	1	0	0
11:34	0	1	0
11:35	1	0	0
11:36	1	2	0
11:37	3	1	0
11:38	3	0	0
11:39	2	1	0
11:40	2	1	0
11:41	3	0	0
11:42	2	0	0
11:43	2	0	0
11:44	2	2	0
11:45	3	1	0
11:46	3	0	0
11:47	2	0	0
11:48	1	0	0
11:49	1	0	0
11:50	0	0	0
11:51	1	3	0
11:52	2	2	0
11:53	4	0	0
11:54	4	1	0
11:55	4	2	0
11:56	4	2	0
11:57	4	2	0
11:58	3	1	0
11:59	3	1	0

Time	Queue #1	Queue #2	Queue #3
12:00	2	1	0
12:01	1	2	0
12:02	1	1	0
12:03	1	2	0
12:04	3	0	0
12:05	3	0	0
12:06	2	2	0
12:07	2	2	0
12:08	2	1	0
12:09	3	0	0
12:10	2	1	0
12:11	3	2	0
12:12	3	1	0
12:13	3	0	0
12:14	3	0	0
12:15	2	1	0
12:16	1	0	0
12:17	0	1	0
12:18	2	1	0
12:19	3	0	0
12:20	2	0	0
12:21	1	2	0
12:22	2	3	0
12:23	1	4	1
12:24	1	4	2
12:25	3	4	1
12:26	3	4	1
12:27	3	4	0
12:28	3	4	2
12:29	4	4	0
12:30	4	4	2
12:31	4	4	0
12:32	4	4	0
12:33	4	3	0
12:34	4	4	1
12:35	4	4	0
12:36	3	4	1
12:37	3	4	1
12:38	3	4	2
12:39	4	4	1
12:40	4	4	0
12:41	4	3	0
12:42	4	2	0
12:43	4	3	0
12:44	3	2	0
12:45	3	2	0
12:46	2	1	0
12:47	2	0	0
12:48	1	0	0
12:49	0	0	0
12:50	0	0	0
12:51	0	0	0
12:52	0	2	0
12:53	2	2	0
12:54	2	1	0
12:55	2	1	0
12:56	1	0	0
12:57	1	2	0
12:58	1	1	0
12:59	1	1	0

Time	Queue #1	Queue #2	Queue #3
13:00	1	2	0
13:01	2	3	0
13:02	3	2	0
13:03	3	1	0
13:04	3	1	0
13:05	2	0	0
13:06	2	0	0
13:07	2	2	0
13:08	2	1	0
13:09	2	4	0
13:10	3	4	0
13:11	4	4	0
13:12	4	2	0
13:13	3	2	0
13:14	3	1	0
13:15	4	1	0
13:16	3	1	0
13:17	3	2	0
13:18	4	3	0
13:19	4	2	0
13:20	3	1	0
13:21	3	2	0
13:22	4	3	0
13:23	3	2	0
13:24	3	1	0
13:25	2	1	0
13:26	1	0	0
13:27	1	0	0
13:28	0	1	0
13:29	1	0	0
13:30	0	1	0
13:31	1	0	0
13:32	0	1	0
13:33	1	0	0
13:34	0	1	0
13:35	1	1	0
13:36	1	2	0
13:37	3	1	0
13:38	3	0	0
13:39	2	0	0
13:40	2	1	0
13:41	3	1	0
13:42	3	3	0
13:43	4	2	0
13:44	4	1	0
13:45	3	1	0
13:46	2	0	0
13:47	2	0	0
13:48	1	2	0
13:49	2	0	0
13:50	2	1	0
13:51	3	0	0
13:52	3	1	0
13:53	4	0	0
13:54	4	0	0
13:55	4	1	0
13:56	3	2	0
13:57	2	1	0
13:58	2	0	0
13:59	2	0	0

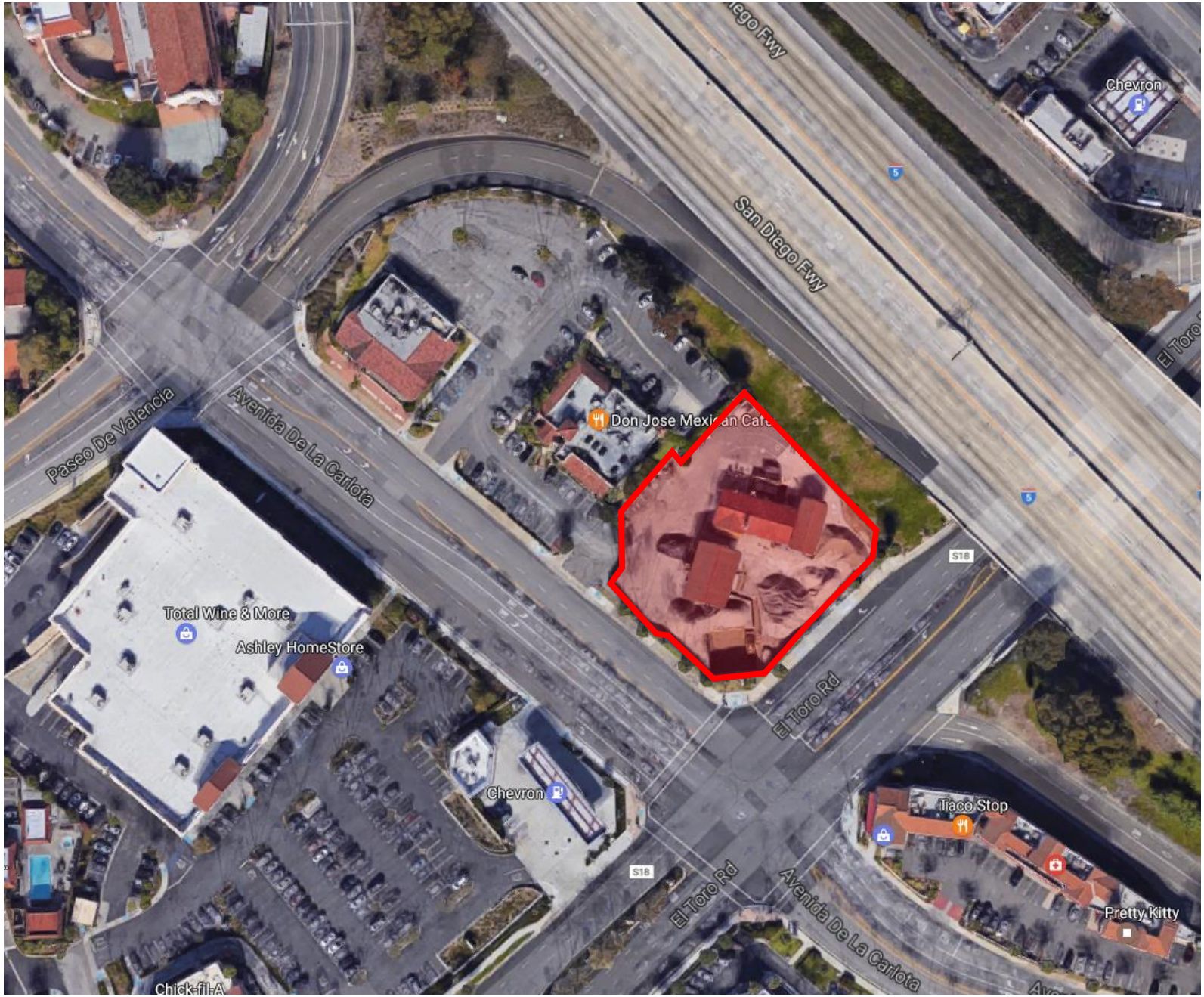
Time	Queue #1	Queue #2	Queue #3
16:00	4	3	0
16:01	4	2	0
16:02	3	2	0
16:03	4	2	0
16:04	3	2	0
16:05	3	3	0
16:06	3	3	0
16:07	4	3	0
16:08	4	4	0
16:09	4	4	0
16:10	4	3	0
16:11	4	4	1
16:12	4	4	1
16:13	4	4	1
16:14	4	3	0
16:15	4	2	0
16:16	4	3	0
16:17	4	3	0
16:18	4	1	0
16:19	4	1	0
16:20	4	1	0
16:21	3	2	0
16:22	3	1	0
16:23	3	0	0
16:24	2	0	0
16:25	2	0	0
16:26	2	0	0
16:27	1	0	0
16:28	0	0	0
16:29	0	0	0
16:30	0	0	0
16:31	1	1	0
16:32	1	0	0
16:33	1	1	0
16:34	2	0	0
16:35	1	0	0
16:36	1	1	0
16:37	0	1	0
16:38	1	0	0
16:39	1	2	0
16:40	3	0	0
16:41	2	1	0
16:42	3	1	0
16:43	3	2	0
16:44	4	0	0
16:45	3	1	0
16:46	3	2	0
16:47	3	2	0
16:48	3	2	0
16:49	4	1	0
16:50	3	1	0
16:51	2	2	0
16:52	3	3	0
16:53	4	1	0
16:54	4	1	0
16:55	4	1	0
16:56	4	1	0
16:57	4	2	0
16:58	3	1	0
16:59	3	0	0

Time	Queue #1	Queue #2	Queue #3
17:00	3	0	0
17:01	2	0	0
17:02	1	1	0
17:03	1	0	0
17:04	0	0	0
17:05	0	0	0
17:06	0	1	0
17:07	2	2	0
17:08	2	1	0
17:09	3	0	0
17:10	2	1	0
17:11	2	0	0
17:12	2	1	0
17:13	2	1	0
17:14	1	0	0
17:15	1	0	0
17:16	1	0	0
17:17	0	0	0
17:18	0	3	0
17:19	3	0	0
17:20	1	1	0
17:21	1	0	0
17:22	1	1	0
17:23	0	1	0
17:24	1	0	0
17:25	1	1	0
17:26	1	1	0
17:27	2	0	0
17:28	2	1	0
17:29	2	2	0
17:30	1	2	0
17:31	1	0	0
17:32	1	2	0
17:33	2	1	0
17:34	3	2	0
17:35	3	2	0
17:36	2	1	0
17:37	3	1	0
17:38	2	1	0
17:39	1	0	0
17:40	1	0	0
17:41	0	0	0
17:42	0	0	0
17:43	0	0	0
17:44	0	1	0
17:45	1	2	0
17:46	3	0	0
17:47	2	0	0
17:48	2	1	0
17:49	2	0	0
17:50	2	0	0
17:51	2	0	0
17:52	1	0	0
17:53	0	0	0
17:54	0	0	0
17:55	1	0	0
17:56	1	0	0
17:57	1	0	0
17:58	0	0	0
17:59	0	0	0

Time	Queue #1	Queue #2	Queue #3
18:00	0	0	0
18:01	0	1	0
18:02	0	3	0
18:03	2	2	0
18:04	2	1	0
18:05	2	0	0
18:06	1	1	0
18:07	1	2	0
18:08	2	1	0
18:09	1	1	0
18:10	1	1	0
18:11	1	1	0
18:12	1	1	0
18:13	1	0	0
18:14	0	0	0
18:15	0	1	0
18:16	1	1	0
18:17	2	1	0
18:18	1	3	0
18:19	2	2	0
18:20	3	3	0
18:21	2	3	0
18:22	2	2	0
18:23	2	3	0
18:24	2	1	0
18:25	1	1	0
18:26	1	0	0
18:27	1	0	0
18:28	1	0	0
18:29	0	1	0
18:30	1	1	0
18:31	2	2	0
18:32	1	3	0
18:33	2	1	0
18:34	2	0	0
18:35	1	1	0
18:36	1	3	0
18:37	3	1	0
18:38	3	0	0
18:39	2	0	0
18:40	1	0	0
18:41	1	1	0
18:42	2	0	0
18:43	1	1	0
18:44	1	2	0
18:45	2	2	0
18:46	2	3	0
18:47	2	2	0
18:48	3	0	0
18:49	2	1	0
18:50	2	2	0
18:51	3	1	0
18:52	1	3	0
18:53	2	4	0
18:54	3	4	0
18:55	4	3	0
18:56	4	3	0
18:57	3	3	0
18:58	3	2	0
18:59	3	0	0

Vicinity Map

23971 El Toro Road, Laguna Hills, CA 92653



KEY:

= Count Location

Prepared by National Data & Surveying Services

MAX Queue Study

Location: 23971 El Toro Rd
City: Laguna Hills, CA

Day: Saturday
Date: 4/8/2017

Time	Queue #1	Queue #2	Queue #3
11:00	1	1	0
11:01	0	0	0
11:02	0	0	0
11:03	0	0	0
11:04	0	0	0
11:05	0	0	0
11:06	1	1	0
11:07	0	0	0
11:08	0	0	0
11:09	0	0	0
11:10	0	1	0
11:11	1	2	0
11:12	2	2	0
11:13	3	0	0
11:14	3	0	0
11:15	3	2	0
11:16	3	3	0
11:17	1	3	0
11:18	2	3	0
11:19	3	3	1
11:20	4	3	2
11:21	4	3	1
11:22	4	3	0
11:23	3	2	0
11:24	3	0	0
11:25	3	0	0
11:26	2	1	0
11:27	2	2	0
11:28	3	1	0
11:29	3	0	0
11:30	1	2	0
11:31	2	1	0
11:32	2	0	0
11:33	0	0	0
11:34	0	0	0
11:35	0	0	0
11:36	1	1	0
11:37	1	1	0
11:38	1	1	0
11:39	2	1	0
11:40	3	1	0
11:41	3	0	0
11:42	2	0	0
11:43	1	1	0
11:44	1	0	0
11:45	0	0	0
11:46	1	1	0
11:47	1	2	0
11:48	1	1	0
11:49	2	2	0
11:50	3	0	0
11:51	1	2	0
11:52	1	2	0
11:53	2	0	0
11:54	0	0	0
11:55	0	1	0
11:56	1	1	0
11:57	1	0	0
11:58	1	1	0
11:59	0	0	0

Time	Queue #1	Queue #2	Queue #3
12:00	1	1	0
12:01	1	2	0
12:02	2	0	0
12:03	1	2	0
12:04	3	2	0
12:05	4	2	0
12:06	4	3	1
12:07	4	3	1
12:08	4	3	2
12:09	1	3	3
12:10	2	3	2
12:11	3	3	2
12:12	3	3	2
12:13	2	3	2
12:14	2	3	2
12:15	2	3	2
12:16	3	3	2
12:17	5	3	3
12:18	5	3	3
12:19	5	3	3
12:20	3	3	2
12:21	2	3	1
12:22	2	3	2
12:23	3	3	1
12:24	3	3	2
12:25	2	3	1
12:26	2	3	0
12:27	2	3	1
12:28	3	2	0
12:29	4	2	0
12:30	4	0	0
12:31	3	1	0
12:32	3	0	0
12:33	2	0	0
12:34	2	1	0
12:35	3	1	0
12:36	3	3	0
12:37	3	2	0
12:38	2	2	0
12:39	2	2	0
12:40	2	2	0
12:41	4	2	0
12:42	1	3	2
12:43	4	3	0
12:44	3	0	0
12:45	4	3	1
12:46	2	3	0
12:47	2	0	0
12:48	4	3	1
12:49	4	3	0
12:50	4	0	0
12:51	4	1	0
12:52	3	0	0
12:53	0	0	0
12:54	2	0	0
12:55	2	2	0
12:56	2	2	0
12:57	1	1	0
12:58	0	1	0
12:59	1	0	0

Time	Queue #1	Queue #2	Queue #3
13:00	1	3	3
13:01	2	3	3
13:02	4	3	4
13:03	3	3	4
13:04	3	3	4
13:05	1	3	4
13:06	2	3	2
13:07	3	3	2
13:08	3	3	3
13:09	3	3	4
13:10	3	3	0
13:11	3	3	0
13:12	4	3	0
13:13	4	2	0
13:14	3	2	0
13:15	3	1	0
13:16	2	1	0
13:17	1	1	0
13:18	1	1	0
13:19	2	3	0
13:20	3	3	0
13:21	3	3	0
13:22	3	2	0
13:23	3	1	0
13:24	2	0	0
13:25	0	3	0
13:26	2	2	0
13:27	3	3	1
13:28	3	3	0
13:29	4	2	0
13:30	1	2	0
13:31	2	2	0
13:32	3	2	0
13:33	3	3	1
13:34	4	3	3
13:35	4	3	1
13:36	1	3	1
13:37	1	3	2
13:38	3	3	2
13:39	4	3	4
13:40	3	3	3
13:41	4	3	4
13:42	3	3	3
13:43	4	3	1
13:44	4	3	3
13:45	4	3	2
13:46	3	3	1
13:47	3	3	1
13:48	4	3	1
13:49	4	3	1
13:50	3	3	2
13:51	2	3	3
13:52	3	3	1
13:53	3	3	0
13:54	1	3	1
13:55	2	3	0
13:56	2	2	0
13:57	3	2	0
13:58	3	2	0
13:59	3	3	0

Time	Queue #1	Queue #2	Queue #3
16:00	0	0	0
16:01	0	1	0
16:02	1	1	0
16:03	1	3	0
16:04	1	2	0
16:05	3	2	0
16:06	3	1	0
16:07	3	0	0
16:08	5	1	0
16:09	3	1	0
16:10	2	2	0
16:11	2	1	0
16:12	2	2	0
16:13	2	3	0
16:14	4	1	0
16:15	4	0	0
16:16	3	0	0
16:17	3	0	0
16:18	2	0	0
16:19	2	1	0
16:20	1	1	0
16:21	1	0	0
16:22	2	1	0
16:23	2	2	0
16:24	3	1	0
16:25	4	1	0
16:26	3	1	0
16:27	4	0	0
16:28	2	2	0
16:29	3	1	0
16:30	4	0	0
16:31	3	1	0
16:32	4	3	0
16:33	3	3	0
16:34	3	3	0
16:35	4	2	0
16:36	3	3	0
16:37	5	3	0
16:38	4	3	0
16:39	4	4	2
16:40	2	4	1
16:41	3	4	0
16:42	3	4	3
16:43	3	4	2
16:44	4	4	2
16:45	4	3	0
16:46	5	2	0
16:47	2	3	0
16:48	4	2	0
16:49	3	3	0
16:50	4	3	0
16:51	4	3	1
16:52	4	3	1
16:53	4	3	1
16:54	4	3	1
16:55	5	4	1
16:56	4	3	2
16:57	4	3	1
16:58	4	3	2
16:59	4	3	2

Time	Queue #1	Queue #2	Queue #3
17:00	4	3	0
17:01	5	3	0
17:02	5	2	0
17:03	5	3	0
17:04	5	3	0
17:05	4	3	0
17:06	3	2	0
17:07	4	2	0
17:08	3	1	0
17:09	4	0	0
17:10	2	1	0
17:11	2	2	0
17:12	3	2	0
17:13	3	0	0
17:14	0	1	0
17:15	1	0	0
17:16	0	0	0
17:17	0	0	0
17:18	0	0	0
17:19	0	1	0
17:20	2	1	0
17:21	0	0	0
17:22	0	0	0
17:23	0	0	0
17:24	0	0	0
17:25	0	0	0
17:26	0	0	0
17:27	0	0	0
17:28	0	1	0
17:29	1	2	0
17:30	1	3	1
17:31	1	3	0
17:32	3	1	0
17:33	4	2	0
17:34	4	2	0
17:35	5	1	0
17:36	5	0	0
17:37	5	2	0
17:38	3	1	0
17:39	3	1	0
17:40	4	0	0
17:41	2	0	0
17:42	0	0	0
17:43	0	0	0
17:44	0	0	0
17:45	0	3	0
17:46	2	2	0
17:47	2	1	0
17:48	3	2	0
17:49	4	0	0
17:50	3	2	0
17:51	3	2	0
17:52	3	3	0
17:53	3	2	0
17:54	3	1	0
17:55	3	1	0
17:56	3	1	0
17:57	3	1	0
17:58	2	1	0
17:59	4	1	0

Time	Queue #1	Queue #2	Queue #3
18:00	2	0	0
18:01	2	0	0
18:02	0	1	0
18:03	1	2	0
18:04	1	2	0
18:05	1	2	0
18:06	2	2	0
18:07	2	2	0
18:08	2	0	0
18:09	2	0	0
18:10	2	1	0
18:11	0	0	0
18:12	0	1	0
18:13	0	2	0
18:14	0	2	0
18:15	1	3	0
18:16	2	2	0
18:17	2	2	0
18:18	2	2	0
18:19	3	3	0
18:20	3	3	0
18:21	1	3	0
18:22	3	2	0
18:23	3	2	0
18:24	1	3	0
18:25	3	2	0
18:26	2	1	0
18:27	1	4	0
18:28	4	2	0
18:29	4	2	0
18:30	4	1	0
18:31	4	1	0
18:32	2	3	0
18:33	2	3	0
18:34	3	3	0
18:35	2	3	0
18:36	2	3	0
18:37	2	3	0
18:38	1	1	0
18:39	3	3	0
18:40	3	2	0
18:41	4	2	0
18:42	4	2	0
18:43	4	2	0
18:44	2	2	0
18:45	2	1	0
18:46	2	0	0
18:47	2	0	0
18:48	1	0	0
18:49	1	2	0
18:50	2	1	0
18:51	2	1	0
18:52	2	1	0
18:53	0	0	0
18:54	0	0	0
18:55	0	1	0
18:56	2	0	0
18:57	1	0	0
18:58	1	0	0
18:59	3	0	0

Prepared by National Data & Surveying Services

MAX Queue Study

Location: 23971 El Toro Rd
City: Laguna Hills, CA

Day: Tuesday
Date: 4/11/2017

Time	Queue #1	Queue #2	Queue #3
11:00	1	2	0
11:01	2	1	0
11:02	1	1	0
11:03	1	0	0
11:04	1	0	0
11:05	0	0	0
11:06	0	0	0
11:07	0	0	0
11:08	0	0	0
11:09	0	0	0
11:10	1	1	0
11:11	1	2	0
11:12	1	2	0
11:13	2	2	0
11:14	2	1	0
11:15	2	1	0
11:16	2	1	0
11:17	1	1	0
11:18	1	1	0
11:19	2	1	0
11:20	2	0	0
11:21	2	3	0
11:22	3	3	0
11:23	4	1	0
11:24	4	2	0
11:25	5	2	0
11:26	4	2	0
11:27	4	2	0
11:28	4	3	0
11:29	4	3	0
11:30	5	2	0
11:31	5	3	0
11:32	5	0	0
11:33	4	0	0
11:34	4	1	0
11:35	2	1	0
11:36	1	0	0
11:37	0	0	0
11:38	0	0	0
11:39	0	0	0
11:40	2	2	0
11:41	0	0	0
11:42	1	1	0
11:43	1	1	0
11:44	1	2	0
11:45	1	1	0
11:46	2	3	0
11:47	2	2	0
11:48	2	2	0
11:49	3	3	0
11:50	4	3	1
11:51	5	3	1
11:52	5	3	2
11:53	5	3	2
11:54	4	3	2
11:55	4	3	1
11:56	4	3	0
11:57	3	4	0
11:58	4	3	0
11:59	3	3	0

Time	Queue #1	Queue #2	Queue #3
12:00	4	3	1
12:01	4	3	1
12:02	4	3	2
12:03	3	3	1
12:04	3	3	2
12:05	4	3	3
12:06	4	3	3
12:07	4	3	3
12:08	3	3	4
12:09	4	3	2
12:10	3	3	0
12:11	3	3	0
12:12	2	2	0
12:13	3	2	0
12:14	3	3	0
12:15	2	3	0
12:16	2	3	0
12:17	2	1	0
12:18	0	0	0
12:19	1	2	0
12:20	3	3	0
12:21	3	3	1
12:22	2	3	0
12:23	2	3	0
12:24	2	3	0
12:25	3	3	3
12:26	3	4	1
12:27	4	3	2
12:28	4	3	2
12:29	3	3	2
12:30	3	3	1
12:31	4	3	0
12:32	4	2	0
12:33	2	2	0
12:34	1	1	0
12:35	1	2	0
12:36	1	2	0
12:37	1	1	0
12:38	0	1	0
12:39	0	2	0
12:40	1	3	0
12:41	1	3	1
12:42	3	3	1
12:43	4	3	2
12:44	3	3	4
12:45	3	3	0
12:46	3	3	0
12:47	1	2	0
12:48	2	0	0
12:49	2	1	0
12:50	1	1	0
12:51	2	0	0
12:52	3	2	0
12:53	2	0	0
12:54	1	0	0
12:55	2	3	0
12:56	3	1	0
12:57	4	0	0
12:58	0	0	0
12:59	0	1	0

Time	Queue #1	Queue #2	Queue #3
13:00	1	2	0
13:01	2	3	0
13:02	1	3	3
13:03	2	3	3
13:04	1	3	3
13:05	2	3	1
13:06	2	3	2
13:07	1	3	2
13:08	2	3	2
13:09	2	3	1
13:10	3	3	2
13:11	4	3	3
13:12	5	3	2
13:13	4	3	2
13:14	4	3	3
13:15	4	3	3
13:16	4	3	1
13:17	3	3	0
13:18	4	2	0
13:19	4	3	0
13:20	4	3	0
13:21	3	3	1
13:22	4	2	0
13:23	4	2	0
13:24	3	1	0
13:25	2	0	0
13:26	1	0	0
13:27	1	0	0
13:28	2	1	0
13:29	2	0	0
13:30	0	1	0
13:31	1	0	0
13:32	0	1	0
13:33	2	2	0
13:34	2	3	1
13:35	2	3	1
13:36	2	3	0
13:37	3	1	0
13:38	2	3	0
13:39	3	3	0
13:40	4	2	0
13:41	3	3	0
13:42	4	3	1
13:43	5	3	2
13:44	5	3	2
13:45	5	3	0
13:46	3	2	0
13:47	2	2	0
13:48	4	1	0
13:49	3	0	0
13:50	1	1	0
13:51	1	2	0
13:52	2	1	0
13:53	2	0	0
13:54	0	0	0
13:55	0	0	0
13:56	0	0	0
13:57	0	2	0
13:58	0	3	3
13:59	1	3	2

Time	Queue #1	Queue #2	Queue #3
16:00	3	1	0
16:01	2	1	0
16:02	2	0	0
16:03	2	1	0
16:04	2	0	0
16:05	2	1	0
16:06	3	0	0
16:07	3	1	0
16:08	3	0	0
16:09	3	0	0
16:10	2	0	0
16:11	1	0	0
16:12	0	0	0
16:13	0	1	0
16:14	0	1	0
16:15	1	0	0
16:16	2	1	0
16:17	2	0	0
16:18	4	0	0
16:19	3	0	0
16:20	3	0	0
16:21	2	1	0
16:22	1	2	0
16:23	2	1	0
16:24	2	0	0
16:25	1	0	0
16:26	1	0	0
16:27	1	2	0
16:28	1	1	0
16:29	1	1	0
16:30	1	1	0
16:31	2	2	0
16:32	1	2	0
16:33	3	0	0
16:34	2	2	0
16:35	4	3	0
16:36	4	2	0
16:37	4	1	0
16:38	4	1	0
16:39	4	0	0
16:40	4	0	0
16:41	3	0	0
16:42	2	0	0
16:43	1	0	0
16:44	0	2	0
16:45	2	1	0
16:46	2	0	0
16:47	1	0	0
16:48	0	0	0
16:49	1	1	0
16:50	1	2	0
16:51	1	3	0
16:52	1	2	0
16:53	3	2	0
16:54	4	3	1
16:55	4	3	1
16:56	5	2	1
16:57	5	3	1
16:58	5	3	1
16:59	5	3	1

Time	Queue #1	Queue #2	Queue #3
17:00	4	3	1
17:01	5	3	1
17:02	4	3	2
17:03	4	3	2
17:04	3	3	2
17:05	3	3	2
17:06	4	3	1
17:07	4	3	1
17:08	1	3	1
17:09	2	2	0
17:10	2	2	0
17:11	3	2	0
17:12	4	2	0
17:13	3	2	0
17:14	3	1	0
17:15	2	1	0
17:16	3	1	0
17:17	3	0	0
17:18	3	0	0
17:19	2	0	0
17:20	1	0	0
17:21	0	3	0
17:22	2	3	0
17:23	2	3	0
17:24	4	2	0
17:25	4	2	0
17:26	4	1	0
17:27	3	1	0
17:28	2	2	0
17:29	1	1	0
17:30	3	1	0
17:31	2	0	0
17:32	0	0	0
17:33	0	0	0
17:34	1	1	0
17:35	0	0	0
17:36	0	0	0
17:37	0	2	0
17:38	1	2	0
17:39	1	2	0
17:40	1	2	0
17:41	1	1	0
17:42	2	3	0
17:43	3	3	1
17:44	2	3	0
17:45	3	1	0
17:46	2	1	0
17:47	0	0	0
17:48	1	0	0
17:49	1	3	0
17:50	2	4	2
17:51	1	3	0
17:52	2	3	0
17:53	4	2	0
17:54	3	3	0
17:55	4	3	0
17:56	4	3	2
17:57	4	3	1
17:58	4	3	2
17:59	3	4	1

Time	Queue #1	Queue #2	Queue #3
18:00	3	3	1
18:01	2	3	1
18:02	1	3	2
18:03	2	3	0
18:04	2	3	0
18:05	3	2	0
18:06	4	2	0
18:07	3	1	0
18:08	2	0	0
18:09	1	1	0
18:10	1	0	0
18:11	0	1	0
18:12	0	1	0
18:13	1	1	0
18:14	2	3	1
18:15	3	3	1
18:16	4	3	0
18:17	4	3	1
18:18	4	2	0
18:19	5	2	0
18:20	5	1	0
18:21	4	3	1
18:22	4	4	0
18:23	4	3	0
18:24	4	2	0
18:25	3	2	0
18:26	3	2	0
18:27	3	2	0
18:28	3	1	0
18:29	2	1	0
18:30	2	0	0
18:31	1	2	0
18:32	2	1	0
18:33	1	0	0
18:34	1	0	0
18:35	0	0	0
18:36	0	2	0
18:37	2	2	0
18:38	2	3	1
18:39	3	3	1
18:40	2	3	2
18:41	3	3	1
18:42	2	3	0
18:43	4	1	0
18:44	2	1	0
18:45	1	0	0
18:46	1	3	0
18:47	1	1	0
18:48	1	1	0
18:49	1	3	0
18:50	3	2	0
18:51	3	0	0
18:52	0	1	0
18:53	1	3	0
18:54	3	1	0
18:55	1	1	0
18:56	2	0	0
18:57	1	0	0
18:58	1	1	0
18:59	1	0	0

APPENDIX C

TRAFFIC COUNT DATA

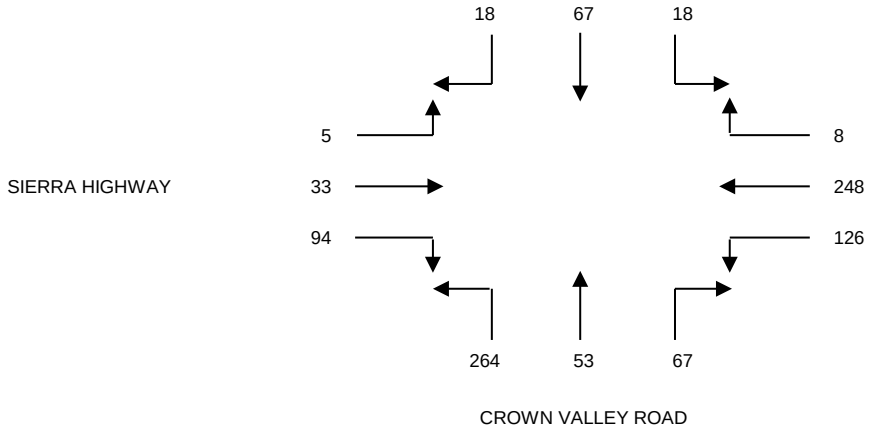
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: ACTON
DATE: TUESDAY, NOVEMBER 05, 2019
PERIOD: 06:30 AM TO 09:00 AM
INTERSECTION: N/S CROWN VALLEY ROAD
E/W SIERRA HIGHWAY
FILE NUMBER: 1_AM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0630-0645	0	9	0	2	44	17	17	4	68	8	5	0
0645-0700	0	11	1	2	50	21	19	5	75	10	7	1
0700-0715	5	14	3	1	74	30	15	12	67	22	8	1
0715-0730	7	18	5	2	77	33	17	14	73	22	8	1
0730-0745	4	19	6	3	58	36	19	15	66	25	9	1
0745-0800	2	16	4	2	39	27	16	12	58	25	8	2
0800-0815	3	18	3	4	30	23	23	7	40	18	12	3
0815-0830	4	19	4	5	33	23	29	9	71	18	17	5
0830-0845	2	21	2	4	30	30	30	9	62	20	16	2
0845-0900	2	24	2	3	27	25	27	7	56	27	17	2

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0630-0730	12	52	9	7	245	101	68	35	283	62	28	3	905
0645-0745	16	62	15	8	259	120	70	46	281	79	32	4	992
0700-0800	18	67	18	8	248	126	67	53	264	94	33	5	1001
0715-0815	16	71	18	11	204	119	75	48	237	90	37	7	933
0730-0830	13	72	17	14	160	109	87	43	235	86	46	11	893
0745-0845	11	74	13	15	132	103	98	37	231	81	53	12	860
0800-0900	11	82	11	16	120	101	109	32	229	83	62	12	868

A.M. PEAK HOUR
0700-0800



DATA PROVIDED BY:

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91005
PH: 626-446-7978
FAX: 626-446-2877
.

PEDESTRIAN - BICYCLE COUNT SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 06:30 AM TO 09:00 AM

INTERSECTION: CROWN VALLEY ROAD / SIERRA HIGHWAY

FILE: 1AMPED-BIKE

	PEDESTRIAN MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0630-0645	0	2	0	0
0645-0700	2	3	0	0
0700-0715	3	1	0	0
0715-0730	1	1	0	0
0730-0745	1	0	0	0
0745-0800	0	0	1	0
0800-0815	0	1	0	0
0815-0830	0	0	0	0
0830-0845	0	0	0	0
0845-0900	0	0	0	0

	BICYCLIST MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0630-0645	0	0	0	0
0645-0700	0	1	0	0
0700-0715	0	0	0	0
0715-0730	0	0	0	0
0730-0745	0	0	0	0
0745-0800	0	1	0	0
0800-0815	0	0	0	0
0815-0830	0	0	0	0
0830-0845	0	0	0	0
0845-0900	0	0	0	0

	PEDESTRIAN MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0630-0730	6	7	0	0	13
0645-0745	7	5	0	0	12
0700-0800	5	2	1	0	8
0715-0815	2	2	1	0	5
0730-0830	1	1	1	0	3
0745-0845	0	1	1	0	2
0800-0900	0	1	0	0	1

	BICYCLIST MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0630-0730	0	1	0	0	1
0645-0745	0	1	0	0	1
0700-0800	0	1	0	0	1
0715-0815	0	1	0	0	1
0730-0830	0	1	0	0	1
0745-0845	0	1	0	0	1
0800-0900	0	0	0	0	0

THE TRAFFIC SOLUTION
9 ALTA STREET UNIT E
ARCADIA, CALIFORNIA 91006
626.485.8048 PHONE
trafsolutn@aol.com

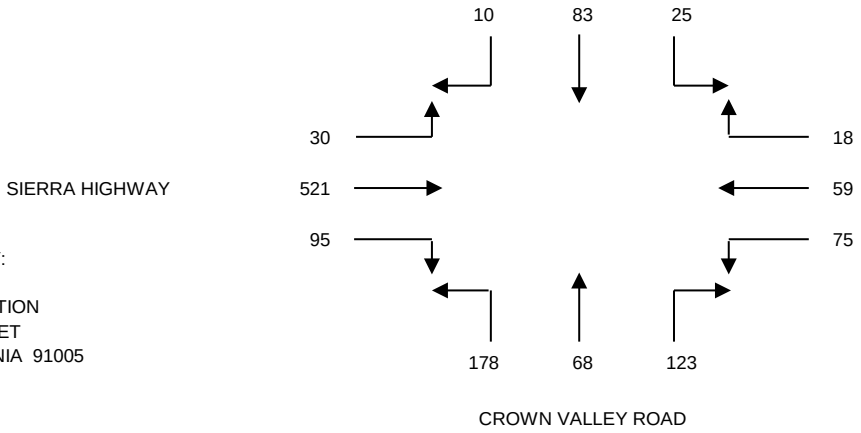
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		LLG - PASADENA
PROJECT:		ACTON
DATE:		TUESDAY, NOVEMBER 05, 2019
PERIOD:		02:30 PM TO 06:00 PM
INTERSECTION:	N/S	CROWN VALLEY ROAD
	E/W	SIERRA HIGHWAY
FILE NUMBER:		1_PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0230-0245	1	20	5	3	15	17	27	14	33	14	42	3
0245-0300	2	22	6	4	17	19	32	16	40	20	43	4
0300-0315	4	21	10	2	18	12	26	27	51	26	45	3
0315-0330	3	20	11	3	20	22	30	30	54	24	47	4
0330-0345	2	19	7	4	19	24	39	28	48	20	50	4
0345-0400	2	18	8	5	21	21	30	22	36	21	51	5
0400-0415	4	16	8	8	14	18	21	20	37	15	73	8
0415-0430	4	17	7	9	16	19	23	25	49	16	82	7
0430-0445	2	17	6	7	22	15	23	20	35	20	118	4
0445-0500	1	14	5	9	20	15	28	19	48	21	125	5
0500-0515	2	21	7	3	15	19	28	16	41	20	121	7
0515-0530	2	20	5	4	15	21	30	19	45	23	113	7
0530-0545	3	22	7	6	14	18	37	19	52	28	139	9
0545-0600	3	20	6	5	15	17	28	14	40	24	148	7

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0230-0330	10	83	32	12	70	70	115	87	178	84	177	14	932
0245-0345	11	82	34	13	74	77	127	101	193	90	185	15	1002
0300-0400	11	78	36	14	78	79	125	107	189	91	193	16	1017
0315-0415	11	73	34	20	74	85	120	100	175	80	221	21	1014
0330-0430	12	70	30	26	70	82	113	95	170	72	256	24	1020
0345-0445	12	68	29	29	73	73	97	87	157	72	324	24	1045
0400-0500	11	64	26	33	72	67	95	84	169	72	398	24	1115
0415-0515	9	69	25	28	73	68	102	80	173	77	446	23	1173
0430-0530	7	72	23	23	72	70	109	74	169	84	477	23	1203
0445-0545	8	77	24	22	64	73	123	73	186	92	498	28	1268
0500-0600	10	83	25	18	59	75	123	68	178	95	521	30	1285

P.M. PEAK HOUR
0500-0600



DATA PROVIDED BY:

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91005
PH: 626-446-7978
FAX: 626-446-2877
.

PEDESTRIAN - BICYCLE COUNT SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 02:30 PM TO 06:00PM

INTERSECTION: CROWN VALLEY ROAD / SIERRA HIGHWAY

FILE: 1PMPED-BIKE

	PEDESTRIAN MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0230-0245	2	4	0	2
0245-0300	0	4	2	0
0300-0315	0	4	0	0
0315-0330	0	3	0	0
0330-0345	0	2	0	0
0345-0400	0	0	0	0
0400-0415	4	4	0	4
0415-0430	1	0	0	1
0430-0445	0	0	0	0
0445-0500	0	0	0	0
0500-0515	0	0	0	0
0515-0530	0	0	0	0
0530-0545	0	0	0	0
0545-0600	0	0	0	0

	BICYCLIST MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0230-0245	0	1	1	0
0245-0300	0	0	0	0
0300-0315	0	0	0	0
0315-0330	0	0	0	0
0330-0345	0	0	0	0
0345-0400	0	0	0	0
0400-0415	0	0	0	0
0415-0430	0	0	0	0
0430-0445	0	0	0	0
0445-0500	0	0	0	1
0500-0515	0	0	0	0
0515-0530	0	0	0	0
0530-0545	0	0	0	0
0545-0600	0	0	0	0

	PEDESTRIAN MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0230-0330	2	15	2	2	21
0245-0345	0	13	2	0	15
0300-0400	0	9	0	0	9
0315-0415	4	9	0	4	17
0330-0430	5	6	0	5	16
0345-0445	5	4	0	5	14
0400-0500	5	4	0	5	14
0415-0515	1	0	0	1	2
0430-0530	0	0	0	0	0
0445-0545	0	0	0	0	0
0500-0600	0	0	0	0	0

	BICYCLIST MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0230-0330	0	1	1	0	2
0245-0345	0	0	0	0	0
0300-0400	0	0	0	0	0
0315-0415	0	0	0	0	0
0330-0430	0	0	0	0	0
0345-0445	0	0	0	0	0
0400-0500	0	0	0	1	1
0415-0515	0	0	0	1	1
0430-0530	0	0	0	1	1
0445-0545	0	0	0	1	1
0500-0600	0	0	0	0	0

THE TRAFFIC SOLUTION
9 ALTA STREET UNIT E
ARCADIA, CALIFORNIA 91006
626.485.8048 PHONE
trafsolutn@aol.com

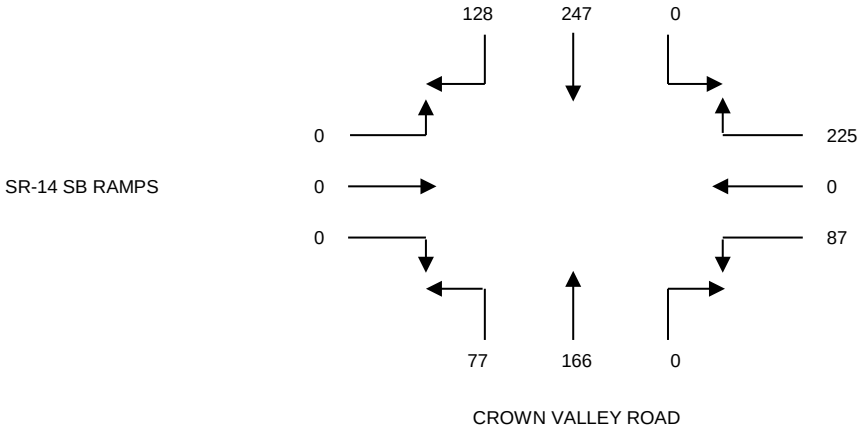
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: ACTON
DATE: TUESDAY, NOVEMBER 05, 2019
PERIOD: 06:30 AM TO 09:00 AM
INTERSECTION: N/S CROWN VALLEY ROAD
E/W SR-14 SB RAMPS
FILE NUMBER: 2_AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
0630-0645	23	31	0	68	0	24	0	30	15	0	0	0
0645-0700	24	21	0	72	0	18	0	23	18	0	0	0
0700-0715	33	42	0	62	0	17	0	32	15	0	0	0
0715-0730	21	58	0	55	0	26	0	41	16	0	0	0
0730-0745	33	111	0	46	0	27	0	59	23	0	0	0
0745-0800	41	36	0	62	0	17	0	34	23	0	0	0
0800-0815	40	35	0	40	0	16	0	28	24	0	0	0
0815-0830	40	38	0	59	0	23	0	42	20	0	0	0
0830-0845	45	38	0	63	0	15	0	43	29	0	0	0
0845-0900	38	33	0	52	0	10	0	48	18	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
0630-0730	101	152	0	257	0	85	0	126	64	0	0	0	785
0645-0745	111	232	0	235	0	88	0	155	72	0	0	0	893
0700-0800	128	247	0	225	0	87	0	166	77	0	0	0	930
0715-0815	135	240	0	203	0	86	0	162	86	0	0	0	912
0730-0830	154	220	0	207	0	83	0	163	90	0	0	0	917
0745-0845	166	147	0	224	0	71	0	147	96	0	0	0	851
0800-0900	163	144	0	214	0	64	0	161	91	0	0	0	837

A.M. PEAK HOUR
0700-0800



DATA PROVIDED BY:

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91005
PH: 626-446-7978
FAX: 626-446-2877
.

PEDESTRIAN - BICYCLE COUNT SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 06:30 AM TO 09:00 AM

INTERSECTION: CROWN VALLEY ROAD / SR-14 SB RAMPS

FILE: 2AMPED-BIKE

	PEDESTRIAN MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0630-0645	0	0	0	1
0645-0700	0	1	0	0
0700-0715	0	3	0	0
0715-0730	0	0	0	0
0730-0745	0	3	0	0
0745-0800	0	2	0	0
0800-0815	0	1	0	1
0815-0830	0	1	0	0
0830-0845	0	0	0	0
0845-0900	0	0	0	0

	BICYCLIST MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0630-0645	0	0	0	0
0645-0700	0	1	0	0
0700-0715	0	0	0	0
0715-0730	0	0	0	0
0730-0745	0	0	0	0
0745-0800	0	1	0	0
0800-0815	0	0	0	0
0815-0830	0	0	0	0
0830-0845	0	0	0	0
0845-0900	0	0	0	0

	PEDESTRIAN MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0630-0730	0	4	0	1	5
0645-0745	0	7	0	0	7
0700-0800	0	8	0	0	8
0715-0815	0	6	0	1	7
0730-0830	0	7	0	1	8
0745-0845	0	4	0	1	5
0800-0900	0	2	0	1	3

	BICYCLIST MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0630-0730	0	1	0	0	1
0645-0745	0	1	0	0	1
0700-0800	0	1	0	0	1
0715-0815	0	1	0	0	1
0730-0830	0	1	0	0	1
0745-0845	0	1	0	0	1
0800-0900	0	0	0	0	0

THE TRAFFIC SOLUTION
9 ALTA STREET UNIT E
ARCADIA, CALIFORNIA 91006
626.485.8048 PHONE
trafsolutn@aol.com

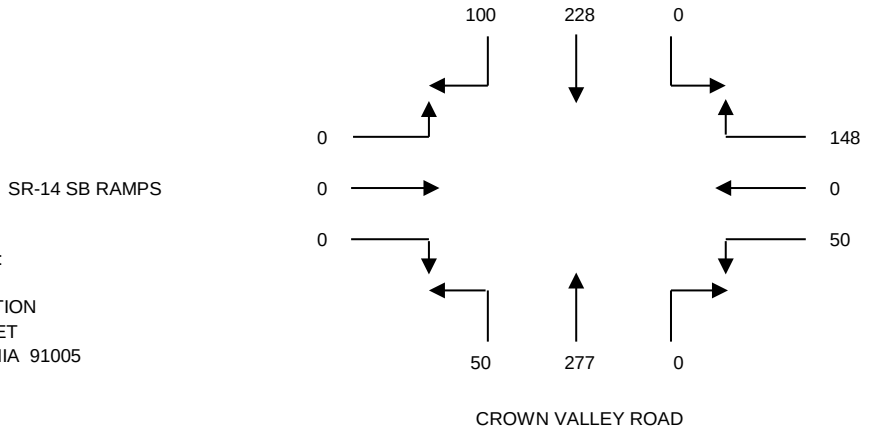
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		LLG - PASADENA
PROJECT:		ACTON
DATE:		TUESDAY, NOVEMBER 05, 2019
PERIOD:		02:30 PM TO 06:00 PM
INTERSECTION:	N/S	CROWN VALLEY ROAD
	E/W	SR-14 SB RAMPS
FILE NUMBER:		2_PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
0230-0245	15	44	0	21	0	10	0	45	8	0	0	0
0245-0300	18	52	0	35	0	15	0	60	12	0	0	0
0300-0315	28	59	0	30	0	14	0	89	13	0	0	0
0315-0330	22	61	0	36	0	10	0	59	15	0	0	0
0330-0345	32	56	0	47	0	11	0	69	10	0	0	0
0345-0400	20	47	0	27	0	14	0	60	9	0	0	0
0400-0415	20	47	0	38	0	13	0	54	14	0	0	0
0415-0430	32	44	0	42	0	19	0	48	17	0	0	0
0430-0445	29	45	0	37	0	12	0	40	19	0	0	0
0445-0500	31	42	0	43	0	12	0	53	17	0	0	0
0500-0515	23	59	0	38	0	13	0	52	14	0	0	0
0515-0530	23	44	0	32	0	17	0	60	12	0	0	0
0530-0545	29	58	0	49	0	18	0	58	9	0	0	0
0545-0600	24	49	0	33	0	12	0	50	13	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
0230-0330	83	216	0	122	0	49	0	253	48	0	0	0	771
0245-0345	100	228	0	148	0	50	0	277	50	0	0	0	853
0300-0400	102	223	0	140	0	49	0	277	47	0	0	0	838
0315-0415	94	211	0	148	0	48	0	242	48	0	0	0	791
0330-0430	104	194	0	154	0	57	0	231	50	0	0	0	790
0345-0445	101	183	0	144	0	58	0	202	59	0	0	0	747
0400-0500	112	178	0	160	0	56	0	195	67	0	0	0	768
0415-0515	115	190	0	160	0	56	0	193	67	0	0	0	781
0430-0530	106	190	0	150	0	54	0	205	62	0	0	0	767
0445-0545	106	203	0	162	0	60	0	223	52	0	0	0	806
0500-0600	99	210	0	152	0	60	0	220	48	0	0	0	789

P.M. PEAK HOUR
0245-0345



DATA PROVIDED BY:

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91005
PH: 626-446-7978
FAX: 626-446-2877
.

PEDESTRIAN - BICYCLE COUNT SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 02:30 PM TO 06:00PM

INTERSECTION: CROWN VALLEY ROAD / SR-14 SB RAMPS

FILE: 2PMPED-BIKE

	PEDESTRIAN MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0230-0245	0	0	0	0
0245-0300	0	0	0	0
0300-0315	0	1	0	0
0315-0330	0	2	0	0
0330-0345	0	2	0	0
0345-0400	0	0	0	0
0400-0415	0	0	0	0
0415-0430	0	0	0	0
0430-0445	0	0	0	0
0445-0500	0	0	0	0
0500-0515	0	1	0	0
0515-0530	0	0	0	0
0530-0545	0	0	0	0
0545-0600	0	0	0	0

	BICYCLIST MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0230-0245	0	1	0	1
0245-0300	0	0	0	0
0300-0315	0	0	0	0
0315-0330	0	0	0	0
0330-0345	0	0	0	0
0345-0400	0	0	0	0
0400-0415	0	0	0	0
0415-0430	0	0	0	0
0430-0445	0	0	0	0
0445-0500	0	0	0	1
0500-0515	0	0	0	0
0515-0530	0	0	0	0
0530-0545	0	0	0	0
0545-0600	0	0	0	0

	PEDESTRIAN MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0230-0330	0	3	0	0	3
0245-0345	0	5	0	0	5
0300-0400	0	5	0	0	5
0315-0415	0	4	0	0	4
0330-0430	0	2	0	0	2
0345-0445	0	0	0	0	0
0400-0500	0	0	0	0	0
0415-0515	0	1	0	0	1
0430-0530	0	1	0	0	1
0445-0545	0	1	0	0	1
0500-0600	0	1	0	0	1

	BICYCLIST MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0230-0330	0	1	0	1	2
0245-0345	0	0	0	0	0
0300-0400	0	0	0	0	0
0315-0415	0	0	0	0	0
0330-0430	0	0	0	0	0
0345-0445	0	0	0	0	0
0400-0500	0	0	0	1	1
0415-0515	0	0	0	1	1
0430-0530	0	0	0	1	1
0445-0545	0	0	0	1	1
0500-0600	0	0	0	0	0

THE TRAFFIC SOLUTION
9 ALTA STREET UNIT E
ARCADIA, CALIFORNIA 91006
626.485.8048 PHONE
trafsolutn@aol.com

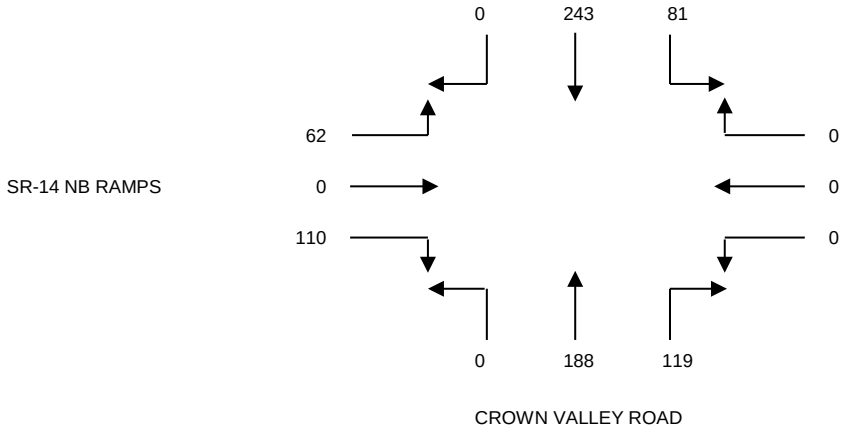
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT:		LLG - PASADENA
PROJECT:		ACTON
DATE:		TUESDAY, NOVEMBER 05, 2019
PERIOD:		06:30 AM TO 09:00 AM
INTERSECTION:	N/S	CROWN VALLEY ROAD
	E/W	SR-14 NB RAMPS
FILE NUMBER:		3_AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
0630-0645	0	36	18	0	0	0	16	28	0	15	0	14
0645-0700	0	26	15	0	0	0	13	29	0	16	0	13
0700-0715	0	32	23	0	0	0	14	31	0	25	0	15
0715-0730	0	62	21	0	0	0	26	43	0	35	0	19
0730-0745	0	109	26	0	0	0	39	66	0	29	0	15
0745-0800	0	37	17	0	0	0	34	43	0	20	0	12
0800-0815	0	35	17	0	0	0	20	36	0	26	0	16
0815-0830	0	41	19	0	0	0	26	57	0	20	0	10
0830-0845	0	31	18	0	0	0	16	50	0	17	1	19
0845-0900	0	29	14	0	0	0	10	42	0	16	0	21

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
0630-0730	0	156	77	0	0	0	69	131	0	91	0	61	585
0645-0745	0	229	85	0	0	0	92	169	0	105	0	62	742
0700-0800	0	240	87	0	0	0	113	183	0	109	0	61	793
0715-0815	0	243	81	0	0	0	119	188	0	110	0	62	803
0730-0830	0	222	79	0	0	0	119	202	0	95	0	53	770
0745-0845	0	144	71	0	0	0	96	186	0	83	1	57	638
0800-0900	0	136	68	0	0	0	72	185	0	79	1	66	607

A.M. PEAK HOUR
0715-0815



DATA PROVIDED BY:

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91005
PH: 626-446-7978
FAX: 626-446-2877
.

PEDESTRIAN - BICYCLE COUNT SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 06:30 AM TO 09:00 AM

INTERSECTION: CROWN VALLEY ROAD / SR-14 NB RAMPS

FILE: 3AMPED-BIKE

	PEDESTRIAN MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0630-0645	0	0	0	1
0645-0700	0	1	0	0
0700-0715	0	3	0	0
0715-0730	0	0	0	0
0730-0745	0	3	0	0
0745-0800	0	2	0	0
0800-0815	0	1	0	0
0815-0830	0	1	0	0
0830-0845	0	0	0	0
0845-0900	0	0	0	0

	BICYCLIST MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0630-0645	0	0	0	0
0645-0700	0	1	0	0
0700-0715	0	0	0	0
0715-0730	0	0	0	0
0730-0745	0	1	0	0
0745-0800	0	0	0	0
0800-0815	0	0	0	0
0815-0830	0	0	0	0
0830-0845	0	0	0	0
0845-0900	0	0	0	0

	PEDESTRIAN MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0630-0730	0	4	0	1	5
0645-0745	0	7	0	0	7
0700-0800	0	8	0	0	8
0715-0815	0	6	0	0	6
0730-0830	0	7	0	0	7
0745-0845	0	4	0	0	4
0800-0900	0	2	0	0	2

	BICYCLIST MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0630-0730	0	1	0	0	1
0645-0745	0	2	0	0	2
0700-0800	0	1	0	0	1
0715-0815	0	1	0	0	1
0730-0830	0	1	0	0	1
0745-0845	0	0	0	0	0
0800-0900	0	0	0	0	0

THE TRAFFIC SOLUTION
9 ALTA STREET UNIT E
ARCADIA, CALIFORNIA 91006
626.485.8048 PHONE
trafsolutn@aol.com

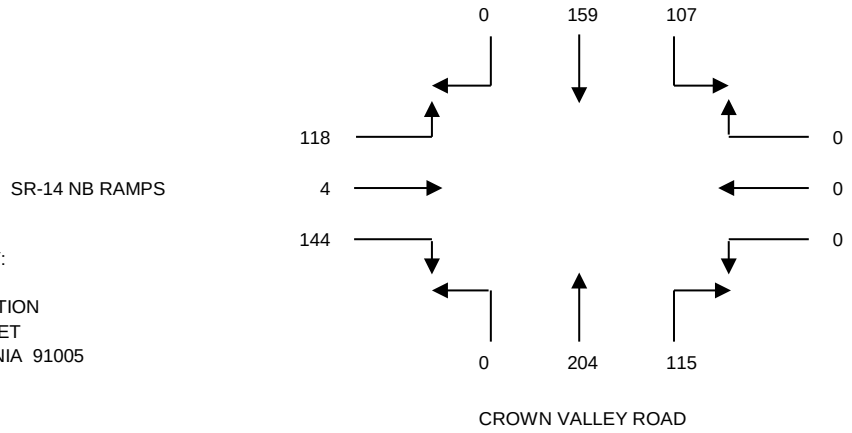
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: ACTON
DATE: TUESDAY, NOVEMBER 05, 2019
PERIOD: 02:30 PM TO 06:00 PM
INTERSECTION: N/S CROWN VALLEY ROAD
E/W SR-14 NB RAMPS
FILE NUMBER: 3_PM

15 MINUTE TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT
0230-0245	0	36	18	0	0	0	15	44	0	27	0	24
0245-0300	0	46	20	0	0	0	22	45	0	27	0	28
0300-0315	0	51	29	0	0	0	24	61	0	31	2	37
0315-0330	0	35	27	0	0	0	27	44	0	33	0	24
0330-0345	0	34	27	0	0	0	36	51	0	47	0	34
0345-0400	0	39	24	0	0	0	28	48	0	33	2	23
0400-0415	0	40	27	0	0	0	28	43	0	27	0	28
0415-0430	0	43	20	0	0	0	28	36	0	33	0	20
0430-0445	0	26	29	0	0	0	23	40	0	33	0	24
0445-0500	0	27	28	0	0	0	27	41	0	32	0	34
0500-0515	0	36	36	0	0	0	33	37	0	38	2	32
0515-0530	0	37	28	0	0	0	27	33	0	22	1	30
0530-0545	0	46	32	0	0	0	28	32	0	35	3	33
0545-0600	0	23	30	0	0	0	20	37	0	27	0	28

1 HOUR TOTALS	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTALS
0230-0330	0	168	94	0	0	0	88	194	0	118	2	113	777
0245-0345	0	166	103	0	0	0	109	201	0	138	2	123	842
0300-0400	0	159	107	0	0	0	115	204	0	144	4	118	851
0315-0415	0	148	105	0	0	0	119	186	0	140	2	109	809
0330-0430	0	156	98	0	0	0	120	178	0	140	2	105	799
0345-0445	0	148	100	0	0	0	107	167	0	126	2	95	745
0400-0500	0	136	104	0	0	0	106	160	0	125	0	106	737
0415-0515	0	132	113	0	0	0	111	154	0	136	2	110	758
0430-0530	0	126	121	0	0	0	110	151	0	125	3	120	756
0445-0545	0	146	124	0	0	0	115	143	0	127	6	129	790
0500-0600	0	142	126	0	0	0	108	139	0	122	6	123	766

P.M. PEAK HOUR
0300-0400



DATA PROVIDED BY:

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91005
PH: 626-446-7978
FAX: 626-446-2877
.

PEDESTRIAN - BICYCLE COUNT SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 02:30 PM TO 06:00PM

INTERSECTION: CROWN VALLEY ROAD / SR-14 NB RAMPS

FILE: 3PMPED-BIKE

	PEDESTRIAN MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0230-0245	0	0	0	0
0245-0300	0	0	0	0
0300-0315	0	1	0	0
0315-0330	0	1	0	0
0330-0345	0	2	0	0
0345-0400	0	0	0	0
0400-0415	0	0	0	0
0415-0430	0	0	0	0
0430-0445	0	0	0	0
0445-0500	0	0	0	0
0500-0515	0	0	0	0
0515-0530	0	0	0	0
0530-0545	0	0	0	0
0545-0600	0	0	0	0

	BICYCLIST MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0230-0245	0	1	0	1
0245-0300	0	0	0	0
0300-0315	0	0	0	0
0315-0330	0	0	0	0
0330-0345	0	0	0	0
0345-0400	0	0	0	0
0400-0415	0	0	0	0
0415-0430	0	0	0	0
0430-0445	0	0	0	0
0445-0500	0	0	0	0
0500-0515	0	0	0	1
0515-0530	0	0	0	0
0530-0545	0	0	0	0
0545-0600	0	0	0	0

	PEDESTRIAN MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0230-0330	0	2	0	0	2
0245-0345	0	4	0	0	4
0300-0400	0	4	0	0	4
0315-0415	0	3	0	0	3
0330-0430	0	2	0	0	2
0345-0445	0	0	0	0	0
0400-0500	0	0	0	0	0
0415-0515	0	0	0	0	0
0430-0530	0	0	0	0	0
0445-0545	0	0	0	0	0
0500-0600	0	0	0	0	0

	BICYCLIST MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0230-0330	0	1	0	1	2
0245-0345	0	0	0	0	0
0300-0400	0	0	0	0	0
0315-0415	0	0	0	0	0
0330-0430	0	0	0	0	0
0345-0445	0	0	0	0	0
0400-0500	0	0	0	0	0
0415-0515	0	0	0	1	1
0430-0530	0	0	0	1	1
0445-0545	0	0	0	1	1
0500-0600	0	0	0	1	1

THE TRAFFIC SOLUTION
9 ALTA STREET UNIT E
ARCADIA, CALIFORNIA 91006
626.485.8048 PHONE
trafsolutn@aol.com

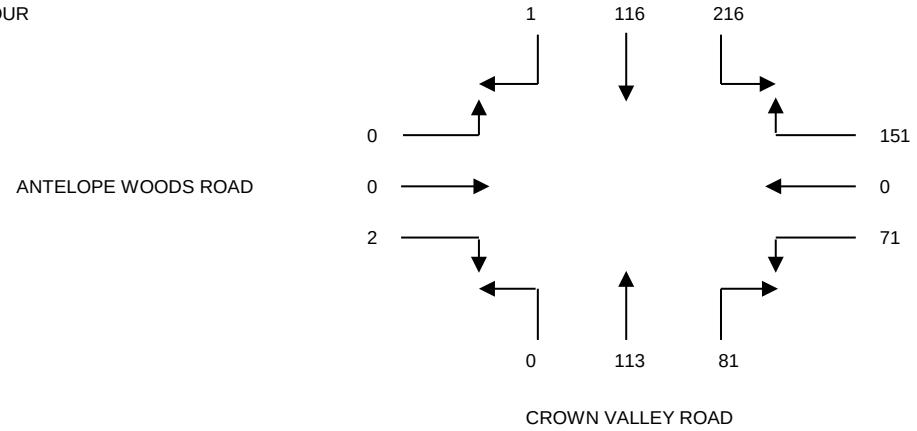
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: ACTON
DATE: TUESDAY, NOVEMBER 05, 2019
PERIOD: 06:30 AM TO 09:00 AM
INTERSECTION: N/S CROWN VALLEY ROAD
E/W ANTELOPE WOODS ROAD
FILE NUMBER: 4_AM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
0630-0645	0	19	20	5	0	3	1	20	0	0	0	0
0645-0700	1	14	20	3	0	6	4	20	0	0	0	0
0700-0715	0	24	26	4	0	9	4	25	0	2	0	0
0715-0730	0	27	57	43	0	17	29	23	0	1	0	0
0730-0745	0	30	119	87	0	33	37	34	0	1	0	0
0745-0800	0	25	21	16	0	18	10	23	0	0	0	0
0800-0815	1	34	19	5	0	3	5	33	0	0	0	0
0815-0830	1	39	22	9	0	3	7	69	1	1	0	0
0830-0845	0	25	14	4	0	4	4	42	1	2	0	0
0845-0900	0	27	16	12	0	1	1	28	0	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
0630-0730	1	84	123	55	0	35	38	88	0	3	0	0	427
0645-0745	1	95	222	137	0	65	74	102	0	4	0	0	700
0700-0800	0	106	223	150	0	77	80	105	0	4	0	0	745
0715-0815	1	116	216	151	0	71	81	113	0	2	0	0	751
0730-0830	2	128	181	117	0	57	59	159	1	2	0	0	706
0745-0845	2	123	76	34	0	28	26	167	2	3	0	0	461
0800-0900	2	125	71	30	0	11	17	172	2	3	0	0	433

A.M. PEAK HOUR
0715-0815



DATA PROVIDED BY:

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91005
PH: 626-446-7978
FAX: 626-446-2877
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PEDESTRIAN - BICYCLE COUNT SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 06:30 AM TO 09:00 AM

INTERSECTION: CROWN VALLEY ROAD / ANTELOPE WOODS ROAD

FILE: 4AMPED-BIKE

	PEDESTRIAN MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0630-0645	0	0	0	0
0645-0700	0	0	0	0
0700-0715	0	3	1	0
0715-0730	0	2	0	0
0730-0745	0	3	0	0
0745-0800	0	2	0	0
0800-0815	0	0	0	0
0815-0830	0	0	0	0
0830-0845	0	0	0	0
0845-0900	0	0	0	0

	BICYCLIST MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0630-0645	0	0	0	0
0645-0700	0	1	0	0
0700-0715	0	0	0	0
0715-0730	0	0	0	0
0730-0745	0	1	0	0
0745-0800	0	0	0	0
0800-0815	0	0	0	0
0815-0830	0	0	0	0
0830-0845	0	0	0	0
0845-0900	0	0	0	0

	PEDESTRIAN MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0630-0730	0	5	1	0	6
0645-0745	0	8	1	0	9
0700-0800	0	10	1	0	11
0715-0815	0	7	0	0	7
0730-0830	0	5	0	0	5
0745-0845	0	2	0	0	2
0800-0900	0	0	0	0	0

	BICYCLIST MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0630-0730	0	1	0	0	1
0645-0745	0	2	0	0	2
0700-0800	0	1	0	0	1
0715-0815	0	1	0	0	1
0730-0830	0	1	0	0	1
0745-0845	0	0	0	0	0
0800-0900	0	0	0	0	0

THE TRAFFIC SOLUTION
9 ALTA STREET UNIT E
ARCADIA, CALIFORNIA 91006
626.485.8048 PHONE
trafsolutn@aol.com

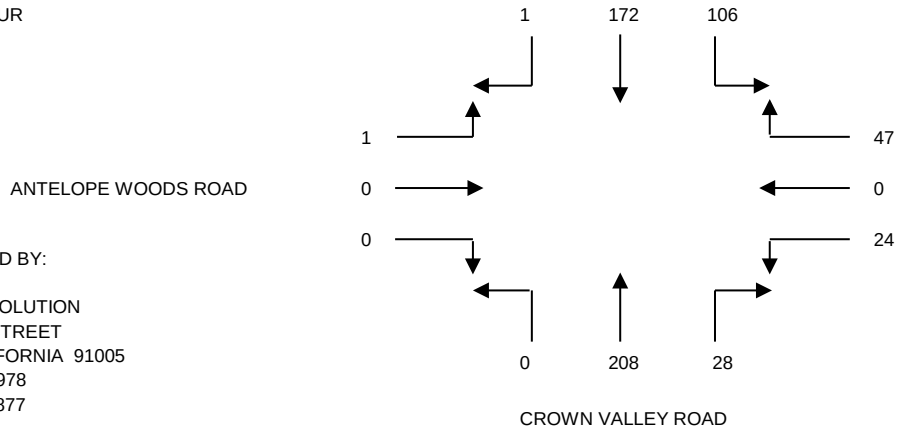
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: LLG - PASADENA
PROJECT: ACTON
DATE: TUESDAY, NOVEMBER 05, 2019
PERIOD: 02:30 PM TO 06:00 PM
INTERSECTION: N/S CROWN VALLEY ROAD
E/W ANTELOPE WOODS ROAD
FILE NUMBER: 4_PM

15 MINUTE	1	2	3	4	5	6	7	8	9	10	11	12
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT
0230-0245	1	32	18	6	0	5	6	30	0	0	0	0
0245-0300	0	51	24	10	0	8	8	50	0	0	0	1
0300-0315	0	45	23	8	0	5	7	73	0	0	0	0
0315-0330	0	34	24	10	0	4	6	43	0	0	0	0
0330-0345	1	42	35	19	0	7	7	42	0	0	0	0
0345-0400	2	41	22	14	0	3	3	43	0	0	0	1
0400-0415	2	36	28	10	0	3	3	41	0	1	0	2
0415-0430	0	37	27	12	0	4	1	40	0	0	0	1
0430-0445	0	30	24	7	0	4	4	33	0	0	0	0
0445-0500	1	34	20	14	0	2	3	37	0	0	0	0
0500-0515	0	49	26	13	0	2	3	44	0	0	0	2
0515-0530	2	38	20	10	0	1	4	55	0	0	0	1
0530-0545	0	27	18	7	0	2	1	31	0	0	0	0
0545-0600	0	31	16	5	0	2	2	28	0	0	0	0

1 HOUR	1	2	3	4	5	6	7	8	9	10	11	12	
TOTALS	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTALS
0230-0330	1	162	89	34	0	22	27	196	0	0	0	1	532
0245-0345	1	172	106	47	0	24	28	208	0	0	0	1	587
0300-0400	3	162	104	51	0	19	23	201	0	0	0	1	564
0315-0415	5	153	109	53	0	17	19	169	0	1	0	3	529
0330-0430	5	156	112	55	0	17	14	166	0	1	0	4	530
0345-0445	4	144	101	43	0	14	11	157	0	1	0	4	479
0400-0500	3	137	99	43	0	13	11	151	0	1	0	3	461
0415-0515	1	150	97	46	0	12	11	154	0	0	0	3	474
0430-0530	3	151	90	44	0	9	14	169	0	0	0	3	483
0445-0545	3	148	84	44	0	7	11	167	0	0	0	3	467
0500-0600	2	145	80	35	0	7	10	158	0	0	0	3	440

P.M. PEAK HOUR
0245-0345



DATA PROVIDED BY:

THE TRAFFIC SOLUTION
329 DIAMOND STREET
ARCADIA, CALIFORNIA 91005
PH: 626-446-7978
FAX: 626-446-2877
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PEDESTRIAN - BICYCLE COUNT SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 02:30 PM TO 06:00PM

INTERSECTION: CROWN VALLEY ROAD / ANTELOPE WOODS ROAD

FILE: 4PMPED-BIKE

	PEDESTRIAN MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0230-0245	0	1	1	0
0245-0300	0	1	1	0
0300-0315	0	0	0	0
0315-0330	0	0	0	0
0330-0345	0	2	0	0
0345-0400	0	0	0	0
0400-0415	0	0	0	0
0415-0430	0	0	0	0
0430-0445	0	0	0	0
0445-0500	0	0	0	0
0500-0515	0	0	0	0
0515-0530	0	0	0	0
0530-0545	0	0	0	0
0545-0600	0	0	0	0

	BICYCLIST MOVEMENTS			
15-MINUTE PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D
0230-0245	0	0	0	1
0245-0300	0	0	0	0
0300-0315	0	0	0	0
0315-0330	0	0	0	0
0330-0345	0	0	0	0
0345-0400	0	0	0	0
0400-0415	0	0	0	0
0415-0430	0	0	0	0
0430-0445	0	0	0	1
0445-0500	0	0	0	0
0500-0515	0	0	0	0
0515-0530	0	0	0	0
0530-0545	0	0	0	0
0545-0600	0	0	0	0

	PEDESTRIAN MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0230-0330	0	2	2	0	4
0245-0345	0	3	1	0	4
0300-0400	0	2	0	0	2
0315-0415	0	2	0	0	2
0330-0430	0	2	0	0	2
0345-0445	0	0	0	0	0
0400-0500	0	0	0	0	0
0415-0515	0	0	0	0	0
0430-0530	0	0	0	0	0
0445-0545	0	0	0	0	0
0500-0600	0	0	0	0	0

	BICYCLIST MOVEMENTS				
1-HOUR PERIOD	NORTH LEG A	EAST LEG B	SOUTH LEG C	WEST LEG D	TOTALS
0230-0330	0	0	0	1	1
0245-0345	0	0	0	0	0
0300-0400	0	0	0	0	0
0315-0415	0	0	0	0	0
0330-0430	0	0	0	0	0
0345-0445	0	0	0	1	1
0400-0500	0	0	0	1	1
0415-0515	0	0	0	1	1
0430-0530	0	0	0	1	1
0445-0545	0	0	0	0	0
0500-0600	0	0	0	0	0

THE TRAFFIC SOLUTION
9 ALTA STREET UNIT E
ARCADIA, CALIFORNIA 91006
626.485.8048 PHONE
trafsolutn@aol.com

DRIVEWAY COUNT RESULTS - SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 06:30 AM TO 09:00 AM

DRIVEWAYS: SIERRA HIGHWAY LOCATIONS 1,2,3

FILE: DRWY_AM

	DRIVEWAY 1 - SIERRA HIGHWAY				DRIVEWAY 2 - SIERRA HIGHWAY				DRIVEWAY 3 - (WEST 76 STATION) SIERRA HIGHWAY			
15-MIN	INBOUND		OUTBOUND		INBOUND		OUTBOUND		INBOUND		OUTBOUND	
PERIOD	WBRT	EBLT	SBRT	SBLT	WBRT	EBLT	SBRT	SBLT	WBRT	EBLT	SBRT	SBLT
0630-0645	0	0	1	3	0	0	0	0	0	8	9	5
0645-0700	0	0	0	0	0	0	0	0	4	2	8	1
0700-0715	0	0	1	0	0	0	0	0	3	2	7	7
0715-0730	0	1	1	1	0	0	0	0	5	1	3	7
0730-0745	0	1	1	0	0	0	0	0	3	0	7	7
0745-0800	0	0	0	0	0	0	0	0	1	4	5	6
0800-0815	0	0	0	1	0	0	1	0	0	2	2	1
0815-0830	0	1	0	0	0	0	0	0	1	7	7	2
0830-0845	0	0	1	1	0	0	0	0	4	5	10	5
0845-0900	0	0	0	1	0	0	0	0	1	6	3	2

	DRIVEWAY 1 - SIERRA HIGHWAY				DRIVEWAY 2 - SIERRA HIGHWAY				DRIVEWAY 3 - (WEST 76 STATION) SIERRA HIGHWAY			
1-HOUR	INBOUND		OUTBOUND		INBOUND		OUTBOUND		INBOUND		OUTBOUND	
PERIOD	WBRT	EBLT	SBRT	SBLT	WBRT	EBLT	SBRT	SBLT	WBRT	EBLT	SBRT	SBLT
0630-0730	0	1	3	4	0	0	0	0	12	13	27	20
0645-0745	0	2	3	1	0	0	0	0	15	5	25	22
0700-0800	0	2	3	1	0	0	0	0	12	7	22	27
0715-0815	0	2	2	2	0	0	1	0	9	7	17	21
0730-0830	0	2	1	1	0	0	1	0	5	13	21	16
0745-0845	0	1	1	2	0	0	1	0	6	18	24	14
0800-0900	0	1	1	3	0	0	1	0	6	20	22	10

DRIVEWAY COUNT RESULTS - SUMMARY

CLIENT: LLG - PASADENA

PROJECT: ACTON

DATE: TUESDAY, NOVEMBER 05, 2019

PERIOD: 02:30 PM TO 06:00 PM

DRIVEWAYS: SIERRA HIGHWAY LOCATIONS 1,2,3

FILE: DRWY_PM

	DRIVEWAY 1 - SIERRA HIGHWAY				DRIVEWAY 2 - SIERRA HIGHWAY				DRIVEWAY 3 - (WEST 76 STATION) SIERRA HIGHWAY			
15-MIN	INBOUND		OUTBOUND		INBOUND		OUTBOUND		INBOUND		OUTBOUND	
PERIOD	WBRT	EBLT	SBRT	SBLT	WBRT	EBLT	SBRT	SBLT	WBRT	EBLT	SBRT	SBLT
0230-0245	0	0	0	0	0	0	0	0	1	3	3	7
0245-0300	0	0	0	0	0	0	0	0	3	2	2	5
0300-0315	0	0	0	0	0	0	0	0	4	9	5	9
0315-0330	0	0	0	0	0	0	0	0	6	2	4	10
0330-0345	0	1	1	0	0	0	0	0	6	2	4	5
0345-0400	0	0	0	0	0	0	0	0	6	3	4	4
0400-0415	1	0	0	0	0	0	0	0	4	2	5	6
0415-0430	0	0	0	0	0	0	0	0	4	2	5	9
0430-0445	0	2	1	0	0	0	0	0	3	4	1	7
0445-0500	0	1	0	0	0	0	0	0	5	6	1	4
0500-0515	0	0	0	0	0	0	0	0	4	5	4	5
0515-0530	0	0	0	0	0	0	0	0	3	2	1	4
0530-0545	0	0	0	0	0	0	0	0	5	2	4	2
0545-0600	0	0	0	0	0	0	0	0	2	4	2	5

	DRIVEWAY 1 - SIERRA HIGHWAY				DRIVEWAY 2 - SIERRA HIGHWAY				DRIVEWAY 3 - (WEST 76 STATION) SIERRA HIGHWAY			
1-HOUR	INBOUND		OUTBOUND		INBOUND		OUTBOUND		INBOUND		OUTBOUND	
PERIOD	WBRT	EBLT	SBRT	SBLT	WBRT	EBLT	SBRT	SBLT	WBRT	EBLT	SBRT	SBLT
0230-0330	0	0	0	0	0	0	0	0	14	16	14	31
0245-0345	0	1	1	0	0	0	0	0	19	15	15	29
0300-0400	0	1	1	0	0	0	0	0	22	16	17	28
0315-0415	1	1	1	0	0	0	0	0	22	9	17	25
0330-0430	1	1	1	0	0	0	0	0	20	9	18	24
0345-0445	1	2	1	0	0	0	0	0	17	11	15	26
0400-0500	1	3	1	0	0	0	0	0	16	14	12	26
0415-0515	0	3	1	0	0	0	0	0	16	17	11	25
0430-0530	0	3	1	0	0	0	0	0	15	17	7	20
0445-0545	0	1	0	0	0	0	0	0	17	15	10	15
0500-0600	0	0	0	0	0	0	0	0	14	13	11	16

APPENDIX D

HCM AND ICU AND LEVELS OF SERVICE EXPLANATION
ICU DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS
SYNCHRO DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS

LEVEL OF SERVICE FOR UNSIGNALIZED INTERSECTIONS

In the *Highway Capacity Manual (HCM)*, published by the Transportation Research Board, 2000, level of service for unsignalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, in the absence of incidents, control, traffic, or geometric delay. Only the portion of total delay attributed to the traffic control measures, either traffic signals or stop signs, is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of Service criteria for unsignalized intersections are stated in terms of the average control delay per vehicle. The level of service is determined by the computed or measured control delay and is defined for each minor movement. Average control delay for any particular minor movement is a function of the service time for the approach and the degree of utilization. (Level of service is not defined for the intersection as a whole for two-way stop controlled intersections.)

Level of Service Criteria for TWSC/AWSC Intersections

Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Level of Service (LOS) values are used to describe intersection operations with service levels varying from LOS A (free flow) to LOS F (jammed condition). The following descriptions summarize *HCM* criteria for each level of service:

LOS A describes operations with very low control delay, up to 10 seconds per vehicle.

LOS B describes operations with control delay greater than 10 and up to 15 seconds per vehicle.

LOS C describes operations with control delay greater than 15 and up to 25 seconds per vehicle.

LOS D describes operations with control delay greater than 25 and up to 35 seconds per vehicle.

LOS E describes operations with control delay greater than 35 and up to 50 seconds per vehicle.

LOS F describes operations with control delay in excess of 50 seconds per vehicle. For two-way stop controlled intersections, LOS F exists when there are insufficient gaps of suitable size to allow side-street demand to safely cross through a major-street traffic stream. This level of service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches.

INTERSECTION CAPACITY UTILIZATION (ICU) DESCRIPTION

Level of Service is a term used to describe prevailing conditions and their effect on traffic. Broadly interpreted, the Levels of Service concept denotes any one of a number of differing combinations of operating conditions which may occur as a roadway is accommodating various traffic volumes. Level of Service is a qualitative measure of the effect of such factors as travel speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

Six Levels of Service, A through F, have been defined in the 1965 *Highway Capacity Manual*, published by the Transportation Research Board. Level of Service A describes a condition of free flow, with low traffic volumes and relatively high speeds, while Level of Service F describes forced traffic flow at low speeds with jammed conditions and queues which cannot clear during the green phases.

The Intersection Capacity Utilization (ICU) method of intersection capacity analysis has been used in our studies. It directly relates traffic demand and available capacity for key intersection movements, regardless of present signal timing, The capacity per hour of green time for each approach is calculated based on the methods of the *Highway Capacity Manual*. The proportion of total signal time needed by each key movement is determined and compared to the total time available (100 percent of the hour). The result of summing the requirements of the conflicting key movements plus an allowance for clearance times is expressed as a decimal fraction. Conflicting key traffic movements are those opposing movements whose combined green time requirements are greatest.

The resulting ICU represents the proportion of the total hour required to accommodate intersection demand volumes if the key conflicting traffic movements are operating at capacity. Other movements may be operating near capacity, or may be operating at significantly better levels. The ICU may be translated to a Level of Service as tabulated below.

The Levels of Service (abbreviated from the *Highway Capacity Manual*) are listed here with their corresponding ICU and Load Factor equivalents. Load Factor is that proportion of the signal cycles during the peak hour which are fully loaded; i.e. when all of the vehicles waiting at the beginning of green are not able to clear on that green phase.

Intersection Capacity Utilization Characteristics

Level of Service	Load Factor	Equivalent ICU
A	0.0	0.00 - 0.60
B	0.0 - 0.1	0.61 - 0.70
C	0.1 - 0.3	0.71 - 0.80
D	0.3 - 0.7	0.81 - 0.90
E	0.7 - 1.0	0.91 - 1.00
F	Not Applicable	Not Applicable

SERVICE LEVEL A
There are no loaded cycles and few are even close to loaded at this service level. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.

SERVICE LEVEL B
This level represents stable operation where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.

SERVICE LEVEL C
At this level stable operation continues. Loading is still intermittent but more frequent than at Level B. Occasionally drivers may have to wait through more than one red signal indication and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.

SERVICE LEVEL D
This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak hour, but enough cycles with lower demand occur to permit periodic clearance of queues, thus preventing excessive backups. Drivers frequently have to wait through more than one red signal. This level is the lower limit of acceptable operation to most drivers.

SERVICE LEVEL E
This represents near capacity and capacity operation. At capacity (ICU = 1.0) it represents the most vehicles that the particular intersection can accommodate. However, full utilization of every signal cycle is seldom attained no matter how great the demand. At this level all drivers wait through more than one red signal, and frequently through several.

SERVICE LEVEL F
Jammed conditions. Traffic backed up from a downstream location on one of the street restricts or prevents movement of traffic through the intersection under consideration.

LINSCOTT, LAW & GREENSPAN, ENGINEERS
600 S. Lake Avenue, Ste 500, Pasadena 91106
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

N-S St: Crown Valley Road
E-W St: Sierra Highway
Project: Acton Project/1-19-4359-1
File: ICU1

Crown Valley Road @ Sierra Highway
Peak hr: AM
Annual Growth: 0.00%

Caltrans Analysis
(Assumes No Ambient Growth)

Date: 11/20/2020
Existing Year: 2019
Projection Year: 2022

	2019 EXISTING TRAFFIC			2019 EXISTING WITH PROJECT				2019 EXISTING W/ PROJECT + MITIGATION				2022 FUTURE PRE-PROJECT					2022 FUTURE WITH PROJECT			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Amb. Grow. Volume	Added Rel. Proj. Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
NB Left	264	1600	0.165 *	47	311	1600	0.194 *	0	311	1600	0.194 *	0	0	264	1600	0.165 *	47	311	1600	0.194 *
NB Thru	53	1600	0.033	0	53	1600	0.033	0	53	1600	0.033	0	0	53	1600	0.033	0	53	1600	0.033
NB Right	67	1600	0.042	0	67	1600	0.042	0	67	1600	0.042	0	25	92	1600	0.058	0	92	1600	0.058
SB Left	18	1600	0.011	0	18	1600	0.011	0	18	1600	0.011	0	2	20	1600	0.013	0	20	1600	0.013
SB Thru	67	1600	0.053 *	0	67	1600	0.056 *	0	67	1600	0.056 *	0	0	67	1600	0.053 *	0	67	1600	0.056 *
SB Right	18	0	0.000	4	22	0	0.000	0	22	0	0.000	0	0	18	0	0.000	4	22	0	0.000
EB Left	5	1600	0.003 *	4	9	1600	0.006 *	0	9	1600	0.006 *	0	0	5	1600	0.003 *	4	9	1600	0.006
EB Thru	33	1600	0.021	12	45	1600	0.028	0	45	1600	0.028	0	8	41	1600	0.026	12	53	1600	0.033
EB Right	94	1600	0.059	46	140	1600	0.088	0	140	1600	0.088	0	0	94	1600	0.059	46	140	1600	0.088 *
WB Left	126	1600	0.079	0	126	1600	0.079	0	126	1600	0.079	0	24	150	1600	0.094	0	150	1600	0.094 *
WB Thru	248	1600	0.160 *	12	260	1600	0.168 *	0	260	1600	0.168 *	0	8	256	1600	0.166 *	12	268	1600	0.174
WB Right	8	0	0.000	0	8	0	0.000	0	8	0	0.000	0	2	10	0	0.000	0	10	0	0.000
Yellow Allowance			0.100 *				0.100 *				0.100 *					0.100 *				0.100 *
ICU			0.481				0.523				0.523					0.488				0.531
LOS			A				A				A					A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

LINSCOTT, LAW & GREENSPAN, ENGINEERS
600 S. Lake Avenue, Ste 500, Pasadena 91106
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

N-S St: Crown Valley Road
E-W St: Sierra Highway
Project: Acton Project/1-19-4359-1
File: ICU1

Crown Valley Road @ Sierra Highway
Peak hr: PM
Annual Growth: 0.00%

Caltrans Analysis
(Assumes No Ambient Growth)

Date: 11/20/2020
Existing Year: 2019
Projection Year: 2022

	2019 EXISTING TRAFFIC			2019 EXISTING WITH PROJECT				2019 EXISTING W/ PROJECT + MITIGATION				2022 FUTURE PRE-PROJECT					2022 FUTURE WITH PROJECT			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Amb. Grow. Volume	Added Rel. Proj. Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
NB Left	178	1600	0.111 *	39	217	1600	0.136 *	0	217	1600	0.136 *	0	0	178	1600	0.111 *	39	217	1600	0.136 *
NB Thru	68	1600	0.043	0	68	1600	0.043	0	68	1600	0.043	0	0	68	1600	0.043	0	68	1600	0.043
NB Right	123	1600	0.077	0	123	1600	0.077	0	123	1600	0.077	0	20	143	1600	0.089	0	143	1600	0.089
SB Left	25	1600	0.016	0	25	1600	0.016	0	25	1600	0.016	0	2	27	1600	0.017	0	27	1600	0.017
SB Thru	83	1600	0.058 *	0	83	1600	0.060 *	0	83	1600	0.060 *	0	0	83	1600	0.058 *	0	83	1600	0.060 *
SB Right	10	0	0.000	3	13	0	0.000	0	13	0	0.000	0	0	10	0	0.000	3	13	0	0.000
EB Left	30	1600	0.019	3	33	1600	0.021	0	33	1600	0.021	0	0	30	1600	0.019	3	33	1600	0.021
EB Thru	521	1600	0.326 *	9	530	1600	0.331 *	0	530	1600	0.331 *	0	7	528	1600	0.330 *	9	537	1600	0.336 *
EB Right	95	1600	0.059	35	130	1600	0.081	0	130	1600	0.081	0	0	95	1600	0.059	35	130	1600	0.081
WB Left	75	1600	0.047 *	0	75	1600	0.047 *	0	75	1600	0.047 *	0	19	94	1600	0.059 *	0	94	1600	0.059 *
WB Thru	59	1600	0.048	10	69	1600	0.054	0	69	1600	0.054	0	6	65	1600	0.053	10	75	1600	0.059
WB Right	18	0	0.000	0	18	0	0.000	0	18	0	0.000	0	2	20	0	0.000	0	20	0	0.000
Yellow Allowance			0.100 *				0.100 *				0.100 *					0.100 *				0.100 *
ICU			0.642				0.674				0.674					0.658				0.690
LOS			B				B				B					B				B

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

LINSCOTT, LAW & GREENSPAN, ENGINEERS
600 S. Lake Avenue, Ste 500, Pasadena 91106
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

Crown Valley Road @ SR-14 Freeway SB Ramps

N-S St: Crown Valley Road
E-W St: SR-14 Freeway SB Ramps
Project: Acton Project/1-19-4359-1
File: ICU2

Peak hr: AM
Annual Growth: 0.00%

Date: 11/20/2020
Existing Year: 2019
Projection Year: 2022

Caltrans Analysis
(Assumes No Ambient Growth)

	2019 EXISTING TRAFFIC			2019 EXISTING WITH PROJECT				2019 EXISTING W/ PROJECT + MITIGATION				2022 FUTURE PRE-PROJECT					2022 FUTURE WITH PROJECT			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Amb. Grow. Volume	Added Rel. Proj. Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
NB Left	77	1600	0.048 *	0	77	1600	0.048 *	0	77	1600	0.048 *	0	2	79	1600	0.049 *	0	79	1600	0.049 *
NB Thru	166	1600	0.104	32	198	1600	0.124	0	198	1600	0.124	0	18	184	1600	0.115	32	216	1600	0.135
NB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
SB Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
SB Thru	247	1600	0.154 *	31	278	1600	0.174 *	0	278	1600	0.174 *	0	12	259	1600	0.162 *	31	290	1600	0.181 *
SB Right	128	1600	0.080	15	143	1600	0.089	0	143	1600	0.089	0	12	140	1600	0.088	15	155	1600	0.097
EB Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *
EB Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
EB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
WB Left	87	0	0.054	0	87	0	0.054	0	87	0	0.054	0	0	87	0	0.054	0	87	0	0.054
WB Thru	0	1600	0.054	0	0	1600	0.054	0	0	1600	0.054	0	0	0	1600	0.054	0	0	1600	0.054
WB Right	225	1600	0.141 *	16	241	1600	0.151 *	0	241	1600	0.151 *	0	8	233	1600	0.146 *	16	249	1600	0.156 *
Yellow Allowance			0.100 *				0.100 *				0.100 *					0.100 *				0.100 *
ICU			0.443				0.473				0.473					0.457				0.486
LOS			A				A				A					A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

LINSCOTT, LAW & GREENSPAN, ENGINEERS
600 S. Lake Avenue, Ste 500, Pasadena 91106
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

N-S St: Crown Valley Road
E-W St: SR-14 Freeway SB Ramps
Project: Acton Project/1-19-4359-1
File: ICU2

Crown Valley Road @ SR-14 Freeway SB Ramps
Peak hr: PM
Annual Growth: 0.00%

Date: 11/20/2020
Existing Year: 2019
Projection Year: 2022

Caltrans Analysis
(Assumes No Ambient Growth)

	2019 EXISTING TRAFFIC			2019 EXISTING WITH PROJECT				2019 EXISTING W/ PROJECT + MITIGATION				2022 FUTURE PRE-PROJECT					2022 FUTURE WITH PROJECT			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Amb. Grow. Volume	Added Rel. Proj. Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
NB Left	50	1600	0.031 *	0	50	1600	0.031	0	50	1600	0.031	0	1	51	1600	0.032	0	51	1600	0.032
NB Thru	277	1600	0.173	26	303	1600	0.189 *	0	303	1600	0.189 *	0	14	291	1600	0.182 *	26	317	1600	0.198 *
NB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
SB Left	0	0	0.000	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *
SB Thru	228	1600	0.143 *	24	252	1600	0.158	0	252	1600	0.158	0	11	239	1600	0.149	24	263	1600	0.164
SB Right	100	1600	0.063	12	112	1600	0.070	0	112	1600	0.070	0	10	110	1600	0.069	12	122	1600	0.076
EB Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *
EB Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
EB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
WB Left	50	0	0.031	0	50	0	0.031	0	50	0	0.031	0	1	51	0	0.032	0	51	0	0.032
WB Thru	0	1600	0.031	0	0	1600	0.031	0	0	1600	0.031	0	0	0	1600	0.032	0	0	1600	0.032
WB Right	148	1600	0.093 *	13	161	1600	0.101 *	0	161	1600	0.101 *	0	7	155	1600	0.097 *	13	168	1600	0.105 *
Yellow Allowance			0.100 *				0.100 *				0.100 *					0.100 *				0.100 *
ICU			0.366				0.390				0.390					0.379				0.403
LOS			A				A				A					A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

LINSCOTT, LAW & GREENSPAN, ENGINEERS
600 S. Lake Avenue, Ste 500, Pasadena 91106
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

N-S St: Crown Valley Road
E-W St: SR-14 Freeway NB Ramps
Project: Acton Project/1-19-4359-1
File: ICU3

Crown Valley Road @ SR-14 Freeway NB Ramps
Peak hr: AM
Annual Growth: 0.00%

Date: 11/20/2020
Existing Year: 2019
Projection Year: 2022

Caltrans Analysis
(Assumes No Ambient Growth)

	2019 EXISTING TRAFFIC			2019 EXISTING WITH PROJECT				2019 EXISTING W/ PROJECT + MITIGATION				2022 FUTURE PRE-PROJECT					2022 FUTURE WITH PROJECT			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Amb. Grow. Volume	Added Rel. Proj. Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
NB Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
NB Thru	188	1600	0.192 *	16	204	1600	0.202 *	0	204	1600	0.202 *	0	6	194	1600	0.196 *	16	210	1600	0.206 *
NB Right	119	0	0.000	0	119	0	0.000	0	119	0	0.000	0	1	120	0	0.000	0	120	0	0.000
SB Left	81	1600	0.051 *	15	96	1600	0.060 *	0	96	1600	0.060 *	0	8	89	1600	0.056 *	15	104	1600	0.065 *
SB Thru	243	1600	0.152	15	258	1600	0.161	0	258	1600	0.161	0	4	247	1600	0.154	15	262	1600	0.164
SB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
EB Left	62	1600	0.039	16	78	1600	0.049	0	78	1600	0.049	0	13	75	1600	0.047	16	91	1600	0.057
EB Thru	0	1600	0.069 *	0	0	1600	0.069 *	0	0	1600	0.069 *	0	0	0	1600	0.069 *	0	0	1600	0.069 *
EB Right	110	0	0.000	0	110	0	0.000	0	110	0	0.000	0	1	111	0	0.000	0	111	0	0.000
WB Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *
WB Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
WB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
Yellow Allowance			0.100 *				0.100 *				0.100 *					0.100 *				0.100 *
ICU			0.411				0.431				0.431					0.421				0.441
LOS			A				A				A					A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

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600 S. Lake Avenue, Ste 500, Pasadena 91106
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

N-S St: Crown Valley Road
E-W St: SR-14 Freeway NB Ramps
Project: Acton Project/1-19-4359-1
File: ICU3

Crown Valley Road @ SR-14 Freeway NB Ramps
Peak hr: PM
Annual Growth: 0.00%

Date: 11/20/2020
Existing Year: 2019
Projection Year: 2022

Caltrans Analysis
(Assumes No Ambient Growth)

	2019 EXISTING TRAFFIC			2019 EXISTING WITH PROJECT				2019 EXISTING W/ PROJECT + MITIGATION				2022 FUTURE PRE-PROJECT					2022 FUTURE WITH PROJECT			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Amb. Grow. Volume	Added Rel. Proj. Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
NB Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
NB Thru	204	1600	0.199 *	13	217	1600	0.208 *	0	217	1600	0.208 *	0	5	209	1600	0.203 *	13	222	1600	0.211 *
NB Right	115	0	0.000	0	115	0	0.000	0	115	0	0.000	0	0	115	0	0.000	0	115	0	0.000
SB Left	107	1600	0.067 *	12	119	1600	0.074 *	0	119	1600	0.074 *	0	6	113	1600	0.071 *	12	125	1600	0.078 *
SB Thru	159	1600	0.099	12	171	1600	0.107	0	171	1600	0.107	0	4	163	1600	0.102	12	175	1600	0.109
SB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
EB Left	118	1600	0.074	13	131	1600	0.082	0	131	1600	0.082	0	10	128	1600	0.080	13	141	1600	0.088
EB Thru	4	1600	0.093 *	0	4	1600	0.093 *	0	4	1600	0.093 *	0	0	4	1600	0.094 *	0	4	1600	0.094 *
EB Right	144	0	0.000	0	144	0	0.000	0	144	0	0.000	0	2	146	0	0.000	0	146	0	0.000
WB Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *
WB Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
WB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
Yellow Allowance			0.100 *				0.100 *				0.100 *					0.100 *				0.100 *
ICU			0.459				0.474				0.474					0.467				0.483
LOS			A				A				A					A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

LINSCOTT, LAW & GREENSPAN, ENGINEERS
600 S. Lake Avenue, Ste 500, Pasadena 91106
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

N-S St: Crown Valley Road
E-W St: Antelope Woods Road
Project: Acton Project/1-19-4359-1
File: ICU4

Crown Valley Road @ Antelope Woods Road
Peak hr: AM
Annual Growth: 0.00%

Date: 11/20/2020
Existing Year: 2019
Projection Year: 2022

Caltrans Analysis
(Assumes No Ambient Growth)

	2019 EXISTING TRAFFIC			2019 EXISTING WITH PROJECT				2019 EXISTING W/ PROJECT + MITIGATION				2022 FUTURE PRE-PROJECT					2022 FUTURE WITH PROJECT			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Amb. Grow. Volume	Added Rel. Proj. Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
NB Left	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	0	1600	0.000	0	0	1600	0.000
NB Thru	113	1600	0.121 *	16	129	1600	0.131 *	0	129	1600	0.131 *	0	7	120	1600	0.126 *	16	136	1600	0.136 *
NB Right	81	0	0.000	0	81	0	0.000	0	81	0	0.000	0	0	81	0	0.000	0	81	0	0.000
SB Left	216	1600	0.135 *	0	216	1600	0.135 *	0	216	1600	0.135 *	0	0	216	1600	0.135 *	0	216	1600	0.135 *
SB Thru	116	1600	0.073	15	131	1600	0.083	0	131	1600	0.083	0	5	121	1600	0.076	15	136	1600	0.086
SB Right	1	0	0.000	0	1	0	0.000	0	1	0	0.000	0	0	1	0	0.000	0	1	0	0.000
EB Left	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0.000 *	0	0	0	0	0.000 *	0	0	0	0.000 *
EB Thru	0	1600	0.001	0	0	1600	0.001	0	0	1600	0.001	0	0	0	1600	0.001	0	0	1600	0.001
EB Right	2	0	0.000	0	2	0	0.000	0	2	0	0.000	0	0	2	0	0.000	0	2	0	0.000
WB Left	71	0	0.044	0	71	0	0.044	0	71	0	0.044	0	0	71	0	0.044	0	71	0	0.044
WB Thru	0	1600	0.044	0	0	1600	0.044	0	0	1600	0.044	0	0	0	1600	0.044	0	0	1600	0.044
WB Right	151	1600	0.094 *	0	151	1600	0.094 *	0	151	1600	0.094 *	0	0	151	1600	0.094 *	0	151	1600	0.094 *
Yellow Allowance			0.100 *				0.100 *				0.100 *					0.100 *				0.100 *
ICU			0.451				0.461				0.461					0.455				0.465
LOS			A				A				A					A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

LINSCOTT, LAW & GREENSPAN, ENGINEERS
600 S. Lake Avenue, Ste 500, Pasadena 91106
(626) 796.2322 Fax (626) 792.0941

INTERSECTION CAPACITY UTILIZATION

N-S St: Crown Valley Road
E-W St: Antelope Woods Road
Project: Acton Project/1-19-4359-1
File: ICU4

Crown Valley Road @ Antelope Woods Road
Peak hr: PM
Annual Growth: 0.00%

Date: 11/20/2020
Existing Year: 2019
Projection Year: 2022

Caltrans Analysis
(Assumes No Ambient Growth)

	2019 EXISTING TRAFFIC			2019 EXISTING WITH PROJECT				2019 EXISTING W/ PROJECT + MITIGATION				2022 FUTURE PRE-PROJECT					2022 FUTURE WITH PROJECT			
Movement	1 Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio	Added Amb. Grow. Volume	Added Rel. Proj. Volume	Total Volume	2 Capacity	V/C Ratio	Added Volume	Total Volume	2 Capacity	V/C Ratio
NB Left	0	1600	0.000	0	0	1600	0.000	0	0	1600	0.000	0	0	0	1600	0.000	0	0	1600	0.000
NB Thru	208	1600	0.148 *	13	221	1600	0.156 *	0	221	1600	0.156 *	0	5	213	1600	0.151 *	13	226	1600	0.159 *
NB Right	28	0	0.000	0	28	0	0.000	0	28	0	0.000	0	0	28	0	0.000	0	28	0	0.000
SB Left	106	1600	0.066 *	0	106	1600	0.066 *	0	106	1600	0.066 *	0	0	106	1600	0.066 *	0	106	1600	0.066 *
SB Thru	172	1600	0.108	12	184	1600	0.116	0	184	1600	0.116	0	6	178	1600	0.112	12	190	1600	0.119
SB Right	1	0	0.000	0	1	0	0.000	0	1	0	0.000	0	0	1	0	0.000	0	1	0	0.000
EB Left	1	0	0.001 *	0	1	0	0.001 *	0	1	0	0.001 *	0	0	1	0	0.001 *	0	1	0	0.001 *
EB Thru	0	1600	0.001	0	0	1600	0.001	0	0	1600	0.001	0	0	0	1600	0.001	0	0	1600	0.001
EB Right	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0	0.000	0	0	0	0.000
WB Left	24	0	0.015	0	24	0	0.015	0	24	0	0.015	0	0	24	0	0.015	0	24	0	0.015
WB Thru	0	1600	0.015	0	0	1600	0.015	0	0	1600	0.015	0	0	0	1600	0.015	0	0	1600	0.015
WB Right	47	1600	0.029 *	0	47	1600	0.029 *	0	47	1600	0.029 *	0	0	47	1600	0.029 *	0	47	1600	0.029 *
Yellow Allowance			0.100 *				0.100 *				0.100 *					0.100 *				0.100 *
ICU			0.344				0.352				0.352					0.347				0.355
LOS			A				A				A					A				A

** Key conflicting movement as a part of ICU*
1 Counts conducted by: The Traffic Solution
2 Capacity expressed in veh/hour of green

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	33	94	126	248	8	264	53	67	18	67	18
Future Vol, veh/h	5	33	94	126	248	8	264	53	67	18	67	18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	37	104	140	276	9	293	59	74	20	74	20
Number of Lanes	1	2	0	1	1	0	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	11.7	16.1	17.5	12.1
HCM LOS	B	C	C	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	10%	0%	97%	0%	79%
Vol Right, %	0%	0%	100%	0%	0%	90%	0%	3%	0%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	264	53	67	5	22	105	126	256	18	85
LT Vol	264	0	0	5	0	0	126	0	18	0
Through Vol	0	53	0	0	22	11	0	248	0	67
RT Vol	0	0	67	0	0	94	0	8	0	18
Lane Flow Rate	293	59	74	6	24	117	140	284	20	94
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.604	0.113	0.128	0.013	0.052	0.228	0.289	0.545	0.046	0.198
Departure Headway (Hd)	7.416	6.91	6.203	8.182	7.673	7.035	7.425	6.897	8.208	7.549
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	490	521	579	438	467	510	486	523	436	475
Service Time	5.137	4.631	3.924	5.929	5.419	4.781	5.145	4.617	5.957	5.298
HCM Lane V/C Ratio	0.598	0.113	0.128	0.014	0.051	0.229	0.288	0.543	0.046	0.198
HCM Control Delay	20.8	10.5	9.8	11	10.8	11.9	13.1	17.6	11.4	12.2
HCM Lane LOS	C	B	A	B	B	B	B	C	B	B
HCM 95th-tile Q	3.9	0.4	0.4	0	0.2	0.9	1.2	3.2	0.1	0.7

Intersection	
Intersection Delay, s/veh	19.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	521	95	75	59	18	178	68	123	25	83	10
Future Vol, veh/h	30	521	95	75	59	18	178	68	123	25	83	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	573	104	82	65	20	196	75	135	27	91	11
Number of Lanes	1	2	0	1	1	0	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	23.8	13.4	15	13.7
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	65%	0%	77%	0%	89%
Vol Right, %	0%	0%	100%	0%	0%	35%	0%	23%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	178	68	123	30	347	269	75	77	25	93
LT Vol	178	0	0	30	0	0	75	0	25	0
Through Vol	0	68	0	0	347	174	0	59	0	83
RT Vol	0	0	123	0	0	95	0	18	0	10
Lane Flow Rate	196	75	135	33	382	295	82	85	27	102
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.453	0.162	0.267	0.07	0.759	0.566	0.203	0.192	0.069	0.241
Departure Headway (Hd)	8.329	7.821	7.11	7.661	7.155	6.904	8.848	8.172	9.081	8.493
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	432	458	504	467	504	523	405	438	394	422
Service Time	6.082	5.574	4.863	5.411	4.904	4.653	6.614	5.938	6.85	6.262
HCM Lane V/C Ratio	0.454	0.164	0.268	0.071	0.758	0.564	0.202	0.194	0.069	0.242
HCM Control Delay	17.8	12.1	12.5	11	29.2	18.3	13.9	12.9	12.5	14
HCM Lane LOS	C	B	B	B	D	C	B	B	B	B
HCM 95th-tile Q	2.3	0.6	1.1	0.2	6.6	3.5	0.8	0.7	0.2	0.9

Intersection	
Intersection Delay, s/veh	19.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	45	140	126	260	8	311	53	67	18	67	22
Future Vol, veh/h	9	45	140	126	260	8	311	53	67	18	67	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	50	156	140	289	9	346	59	74	20	74	24
Number of Lanes	1	2	0	1	1	0	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	13.7	19	25.2	13.1
HCM LOS	B	C	D	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	10%	0%	97%	0%	75%
Vol Right, %	0%	0%	100%	0%	0%	90%	0%	3%	0%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	311	53	67	9	30	155	126	268	18	89
LT Vol	311	0	0	9	0	0	126	0	18	0
Through Vol	0	53	0	0	30	15	0	260	0	67
RT Vol	0	0	67	0	0	140	0	8	0	22
Lane Flow Rate	346	59	74	10	33	172	140	298	20	99
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.752	0.12	0.137	0.024	0.075	0.357	0.309	0.614	0.049	0.224
Departure Headway (Hd)	7.836	7.329	6.619	8.618	8.107	7.461	7.947	7.419	8.849	8.161
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	488	540	415	441	481	452	485	404	439
Service Time	5.593	5.086	4.375	6.383	5.872	5.225	5.702	5.173	6.624	5.935
HCM Lane V/C Ratio	0.752	0.121	0.137	0.024	0.075	0.358	0.31	0.614	0.05	0.226
HCM Control Delay	30.8	11.1	10.4	11.6	11.5	14.3	14.2	21.3	12.1	13.3
HCM Lane LOS	D	B	B	B	B	B	B	C	B	B
HCM 95th-tile Q	6.3	0.4	0.5	0.1	0.2	1.6	1.3	4.1	0.2	0.8

Intersection	
Intersection Delay, s/veh	22.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	530	130	75	69	18	217	68	123	25	83	13
Future Vol, veh/h	33	530	130	75	69	18	217	68	123	25	83	13
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	582	143	82	76	20	238	75	135	27	91	14
Number of Lanes	1	2	0	1	1	0	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	28.2	14.2	17.7	14.4
HCM LOS	D	B	C	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	58%	0%	79%	0%	86%
Vol Right, %	0%	0%	100%	0%	0%	42%	0%	21%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	68	123	33	353	307	75	87	25	96
LT Vol	217	0	0	33	0	0	75	0	25	0
Through Vol	0	68	0	0	353	177	0	69	0	83
RT Vol	0	0	123	0	0	130	0	18	0	13
Lane Flow Rate	238	75	135	36	388	337	82	96	27	105
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.568	0.168	0.276	0.08	0.802	0.668	0.211	0.228	0.072	0.26
Departure Headway (Hd)	8.58	8.071	7.359	7.947	7.44	7.139	9.235	8.577	9.488	8.878
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	420	444	487	450	485	505	387	417	376	403
Service Time	6.346	5.837	5.124	5.706	5.198	4.897	7.016	6.357	7.272	6.662
HCM Lane V/C Ratio	0.567	0.169	0.277	0.08	0.8	0.667	0.212	0.23	0.072	0.261
HCM Control Delay	22.1	12.5	12.9	11.4	34.1	23.2	14.5	13.9	13	14.8
HCM Lane LOS	C	B	B	B	D	C	B	B	B	B
HCM 95th-tile Q	3.4	0.6	1.1	0.3	7.5	4.9	0.8	0.9	0.2	1

Intersection	
Intersection Delay, s/veh	16.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	41	94	150	256	10	264	53	92	20	67	18
Future Vol, veh/h	5	41	94	150	256	10	264	53	92	20	67	18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	46	104	167	284	11	293	59	102	22	74	20
Number of Lanes	1	2	0	1	1	0	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	12.1	17.3	17.9	12.4
HCM LOS	B	C	C	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	13%	0%	96%	0%	79%
Vol Right, %	0%	0%	100%	0%	0%	87%	0%	4%	0%	21%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	264	53	92	5	27	108	150	266	20	85
LT Vol	264	0	0	5	0	0	150	0	20	0
Through Vol	0	53	0	0	27	14	0	256	0	67
RT Vol	0	0	92	0	0	94	0	10	0	18
Lane Flow Rate	293	59	102	6	30	120	167	296	22	94
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.619	0.116	0.181	0.013	0.067	0.242	0.35	0.577	0.052	0.205
Departure Headway (Hd)	7.592	7.086	6.378	8.412	7.902	7.279	7.557	7.025	8.469	7.809
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	475	506	562	426	453	493	477	514	423	459
Service Time	5.332	4.826	4.117	6.161	5.651	5.027	5.296	4.764	6.22	5.56
HCM Lane V/C Ratio	0.617	0.117	0.181	0.014	0.066	0.243	0.35	0.576	0.052	0.205
HCM Control Delay	21.9	10.8	10.5	11.3	11.2	12.4	14.3	19	11.7	12.6
HCM Lane LOS	C	B	B	B	B	B	B	C	B	B
HCM 95th-tile Q	4.1	0.4	0.7	0	0.2	0.9	1.6	3.6	0.2	0.8

Intersection	
Intersection Delay, s/veh	20.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	528	95	94	65	20	178	68	143	27	83	10
Future Vol, veh/h	30	528	95	94	65	20	178	68	143	27	83	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	580	104	103	71	22	196	75	157	30	91	11
Number of Lanes	1	2	0	1	1	0	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	26.5	14.2	15.6	14.1
HCM LOS	D	B	C	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	65%	0%	76%	0%	89%
Vol Right, %	0%	0%	100%	0%	0%	35%	0%	24%	0%	11%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	178	68	143	30	352	271	94	85	27	93
LT Vol	178	0	0	30	0	0	94	0	27	0
Through Vol	0	68	0	0	352	176	0	65	0	83
RT Vol	0	0	143	0	0	95	0	20	0	10
Lane Flow Rate	196	75	157	33	387	298	103	93	30	102
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.464	0.167	0.319	0.072	0.793	0.59	0.259	0.217	0.077	0.249
Departure Headway (Hd)	8.537	8.028	7.316	7.89	7.383	7.134	9.028	8.35	9.363	8.774
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	421	446	490	453	491	506	397	429	382	408
Service Time	6.303	5.794	5.081	5.649	5.141	4.892	6.805	6.126	7.145	6.555
HCM Lane V/C Ratio	0.466	0.168	0.32	0.073	0.788	0.589	0.259	0.217	0.079	0.25
HCM Control Delay	18.5	12.4	13.5	11.3	33	19.7	15	13.4	12.9	14.5
HCM Lane LOS	C	B	B	B	D	C	B	B	B	B
HCM 95th-tile Q	2.4	0.6	1.4	0.2	7.3	3.8	1	0.8	0.2	1

Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	53	140	150	268	10	311	53	92	20	67	22
Future Vol, veh/h	9	53	140	150	268	10	311	53	92	20	67	22
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	59	156	167	298	11	346	59	102	22	74	24
Number of Lanes	1	2	0	1	1	0	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	14.4	20.7	26.3	13.6
HCM LOS	B	C	D	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	11%	0%	96%	0%	75%
Vol Right, %	0%	0%	100%	0%	0%	89%	0%	4%	0%	25%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	311	53	92	9	35	158	150	278	20	89
LT Vol	311	0	0	9	0	0	150	0	20	0
Through Vol	0	53	0	0	35	18	0	268	0	67
RT Vol	0	0	92	0	0	140	0	10	0	22
Lane Flow Rate	346	59	102	10	39	175	167	309	22	99
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.772	0.123	0.194	0.025	0.091	0.375	0.375	0.65	0.056	0.232
Departure Headway (Hd)	8.038	7.531	6.82	8.854	8.342	7.706	8.104	7.57	9.125	8.435
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	449	475	524	403	428	466	443	476	391	424
Service Time	5.803	5.295	4.583	6.631	6.119	5.482	5.868	5.334	6.911	6.222
HCM Lane V/C Ratio	0.771	0.124	0.195	0.025	0.091	0.376	0.377	0.649	0.056	0.233
HCM Control Delay	33.3	11.4	11.2	11.9	12	15.1	15.7	23.4	12.5	13.8
HCM Lane LOS	D	B	B	B	B	C	C	C	B	B
HCM 95th-tile Q	6.7	0.4	0.7	0.1	0.3	1.7	1.7	4.6	0.2	0.9

Intersection	
Intersection Delay, s/veh	24.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	537	130	94	75	20	217	68	143	27	83	13
Future Vol, veh/h	33	537	130	94	75	20	217	68	143	27	83	13
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	590	143	103	82	22	238	75	157	30	91	14
Number of Lanes	1	2	0	1	1	0	1	1	1	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	3	2	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	3	3	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	2	2	3
HCM Control Delay	31.9	15.2	18.6	15
HCM LOS	D	C	C	B

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	100%	0%
Vol Thru, %	0%	100%	0%	0%	100%	58%	0%	79%	0%	86%
Vol Right, %	0%	0%	100%	0%	0%	42%	0%	21%	0%	14%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	68	143	33	358	309	94	95	27	96
LT Vol	217	0	0	33	0	0	94	0	27	0
Through Vol	0	68	0	0	358	179	0	75	0	83
RT Vol	0	0	143	0	0	130	0	20	0	13
Lane Flow Rate	238	75	157	36	393	340	103	104	30	105
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.583	0.172	0.331	0.082	0.838	0.695	0.273	0.257	0.081	0.272
Departure Headway (Hd)	8.796	8.286	7.572	8.18	7.671	7.372	9.524	8.862	9.881	9.27
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	408	430	471	436	468	489	379	408	364	389
Service Time	6.59	6.08	5.365	5.969	5.461	5.161	7.224	6.562	7.591	6.98
HCM Lane V/C Ratio	0.583	0.174	0.333	0.083	0.84	0.695	0.272	0.255	0.082	0.27
HCM Control Delay	23.3	12.8	14.1	11.7	39.2	25.5	15.8	14.6	13.5	15.4
HCM Lane LOS	C	B	B	B	E	D	C	B	B	C
HCM 95th-tile Q	3.6	0.6	1.4	0.3	8.3	5.3	1.1	1	0.3	1.1

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	87	0	225	77	166	0	0	247	128
Future Vol, veh/h	0	0	0	87	0	225	77	166	0	0	247	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	8	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	112	0	288	99	213	0	0	317	164

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	810	892	213	481	0	-	-	-	0
Stage 1	411	411	-	-	-	-	-	-	-
Stage 2	399	481	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	349	281	827	1082	-	0	0	-	-
Stage 1	669	595	-	-	-	0	0	-	-
Stage 2	678	554	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	317	0	827	1082	-	-	-	-	-
Mov Cap-2 Maneuver	317	0	-	-	-	-	-	-	-
Stage 1	608	0	-	-	-	-	-	-	-
Stage 2	678	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	2.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1082	-	317	827	-	-
HCM Lane V/C Ratio	0.091	-	0.352	0.349	-	-
HCM Control Delay (s)	8.7	-	22.4	11.7	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.5	1.6	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	50	0	148	50	277	0	0	228	100
Future Vol, veh/h	0	0	0	50	0	148	50	277	0	0	228	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	54	0	161	54	301	0	0	248	109

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	712	766	301	357	0	-	-	-	0
Stage 1	409	409	-	-	-	-	-	-	-
Stage 2	303	357	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	399	333	739	1202	-	0	0	-	-
Stage 1	671	596	-	-	-	0	0	-	-
Stage 2	749	628	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	381	0	739	1202	-	-	-	-	-
Mov Cap-2 Maneuver	381	0	-	-	-	-	-	-	-
Stage 1	641	0	-	-	-	-	-	-	-
Stage 2	749	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1202	-	381	739	-	-
HCM Lane V/C Ratio	0.045	-	0.143	0.218	-	-
HCM Control Delay (s)	8.1	-	16	11.2	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.8	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	87	0	241	77	198	0	0	278	143
Future Vol, veh/h	0	0	0	87	0	241	77	198	0	0	278	143
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	8	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	112	0	309	99	254	0	0	356	183

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	900	991	254	539	0	-	-	-	0
Stage 1	452	452	-	-	-	-	-	-	-
Stage 2	448	539	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	309	246	785	1029	-	0	0	-	-
Stage 1	641	570	-	-	-	0	0	-	-
Stage 2	644	522	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	279	0	785	1029	-	-	-	-	-
Mov Cap-2 Maneuver	279	0	-	-	-	-	-	-	-
Stage 1	579	0	-	-	-	-	-	-	-
Stage 2	644	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1029	-	279	785	-	-
HCM Lane V/C Ratio	0.096	-	0.4	0.394	-	-
HCM Control Delay (s)	8.9	-	26.2	12.5	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.8	1.9	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	50	0	161	50	303	0	0	252	112
Future Vol, veh/h	0	0	0	50	0	161	50	303	0	0	252	112
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	54	0	175	54	329	0	0	274	122

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	772	833	329	396	0	-	-	-	0
Stage 1	437	437	-	-	-	-	-	-	-
Stage 2	335	396	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	368	304	712	1163	-	0	0	-	-
Stage 1	651	579	-	-	-	0	0	-	-
Stage 2	725	604	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	351	0	712	1163	-	-	-	-	-
Mov Cap-2 Maneuver	351	0	-	-	-	-	-	-	-
Stage 1	621	0	-	-	-	-	-	-	-
Stage 2	725	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1163	-	351	712	-	-
HCM Lane V/C Ratio	0.047	-	0.155	0.246	-	-
HCM Control Delay (s)	8.2	-	17.1	11.7	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	1	-	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	87	0	233	79	184	0	0	259	140
Future Vol, veh/h	0	0	0	87	0	233	79	184	0	0	259	140
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	8	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	112	0	299	101	236	0	0	332	179

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	860	949	236	511	0	-	-	-	0
Stage 1	438	438	-	-	-	-	-	-	-
Stage 2	422	511	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	326	260	803	1054	-	0	0	-	-
Stage 1	651	579	-	-	-	0	0	-	-
Stage 2	662	537	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	295	0	803	1054	-	-	-	-	-
Mov Cap-2 Maneuver	295	0	-	-	-	-	-	-	-
Stage 1	589	0	-	-	-	-	-	-	-
Stage 2	662	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	2.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1054	-	295	803	-	-
HCM Lane V/C Ratio	0.096	-	0.378	0.372	-	-
HCM Control Delay (s)	8.8	-	24.4	12.1	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.7	1.7	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	51	0	155	51	291	0	0	239	110
Future Vol, veh/h	0	0	0	51	0	155	51	291	0	0	239	110
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	55	0	168	55	316	0	0	260	120

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	746	806	316	380	0	-	-	-	0
Stage 1	426	426	-	-	-	-	-	-	-
Stage 2	320	380	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	381	316	724	1178	-	0	0	-	-
Stage 1	659	586	-	-	-	0	0	-	-
Stage 2	736	614	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	363	0	724	1178	-	-	-	-	-
Mov Cap-2 Maneuver	363	0	-	-	-	-	-	-	-
Stage 1	628	0	-	-	-	-	-	-	-
Stage 2	736	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1178	-	363	724	-	-
HCM Lane V/C Ratio	0.047	-	0.153	0.233	-	-
HCM Control Delay (s)	8.2	-	16.7	11.5	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.9	-	-

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	87	0	249	79	216	0	0	290	155
Future Vol, veh/h	0	0	0	87	0	249	79	216	0	0	290	155
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	8	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	112	0	319	101	277	0	0	372	199

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	951	1050	277	571	0	-	-	-	0
Stage 1	479	479	-	-	-	-	-	-	-
Stage 2	472	571	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	288	227	762	1002	-	0	0	-	-
Stage 1	623	555	-	-	-	0	0	-	-
Stage 2	628	505	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	259	0	762	1002	-	-	-	-	-
Mov Cap-2 Maneuver	259	0	-	-	-	-	-	-	-
Stage 1	560	0	-	-	-	-	-	-	-
Stage 2	628	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.2	2.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1002	-	259	762	-	-
HCM Lane V/C Ratio	0.101	-	0.431	0.419	-	-
HCM Control Delay (s)	9	-	29	13.1	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	2	2.1	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	51	0	168	51	317	0	0	263	122
Future Vol, veh/h	0	0	0	51	0	168	51	317	0	0	263	122
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	55	0	183	55	345	0	0	286	133

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	808	874	345	419	0	-	-	-	0
Stage 1	455	455	-	-	-	-	-	-	-
Stage 2	353	419	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	350	288	698	1140	-	0	0	-	-
Stage 1	639	569	-	-	-	0	0	-	-
Stage 2	711	590	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	333	0	698	1140	-	-	-	-	-
Mov Cap-2 Maneuver	333	0	-	-	-	-	-	-	-
Stage 1	608	0	-	-	-	-	-	-	-
Stage 2	711	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1140	-	333	698	-	-
HCM Lane V/C Ratio	0.049	-	0.166	0.262	-	-
HCM Control Delay (s)	8.3	-	18	12	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	1	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	62	0	110	0	0	0	0	188	119	81	243	0
Future Vol, veh/h	62	0	110	0	0	0	0	188	119	81	243	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	83	0	147	0	0	0	0	251	159	108	324	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	871	956	324			-	0	0	416	0	0
Stage 1	540	540	-			-	-	-	-	-	-
Stage 2	331	416	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	322	258	717			0	-	-	1143	-	0
Stage 1	584	521	-			0	-	-	-	-	0
Stage 2	728	592	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	292	0	717			-	-	-	1143	-	-
Mov Cap-2 Maneuver	292	0	-			-	-	-	-	-	-
Stage 1	584	0	-			-	-	-	-	-	-
Stage 2	660	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0	2.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	292	717	1143	-
HCM Lane V/C Ratio	-	-	0.283	0.205	0.094	-
HCM Control Delay (s)	-	-	22.1	11.3	8.5	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.1	0.8	0.3	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	118	4	144	0	0	0	0	204	115	107	159	0
Future Vol, veh/h	118	4	144	0	0	0	0	204	115	107	159	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	130	4	158	0	0	0	0	224	126	118	175	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	698	765	175			-	0	0	354	0	0
Stage 1	411	411	-			-	-	-	-	-	-
Stage 2	287	354	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	407	333	868			0	-	-	1205	-	0
Stage 1	669	595	-			0	-	-	-	-	0
Stage 2	762	630	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	367	0	868			-	-	-	1205	-	-
Mov Cap-2 Maneuver	367	0	-			-	-	-	-	-	-
Stage 1	669	0	-			-	-	-	-	-	-
Stage 2	687	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.5	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	367	868	1205	-
HCM Lane V/C Ratio	-	-	0.353	0.187	0.098	-
HCM Control Delay (s)	-	-	20.1	10.1	8.3	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0.7	0.3	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	78	0	110	0	0	0	0	204	119	96	258	0
Future Vol, veh/h	78	0	110	0	0	0	0	204	119	96	258	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	104	0	147	0	0	0	0	272	159	128	344	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	952	1037	344			-	0	0	437	0	0
Stage 1	600	600	-			-	-	-	-	-	-
Stage 2	352	437	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	288	231	699			0	-	-	1123	-	0
Stage 1	548	490	-			0	-	-	-	-	0
Stage 2	712	579	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	255	0	699			-	-	-	1123	-	-
Mov Cap-2 Maneuver	255	0	-			-	-	-	-	-	-
Stage 1	548	0	-			-	-	-	-	-	-
Stage 2	631	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.6	0	2.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	255	699	1123	-
HCM Lane V/C Ratio	-	-	0.408	0.21	0.114	-
HCM Control Delay (s)	-	-	28.5	11.5	8.6	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0.8	0.4	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	131	4	144	0	0	0	0	217	115	119	171	0
Future Vol, veh/h	131	4	144	0	0	0	0	217	115	119	171	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	144	4	158	0	0	0	0	238	126	131	188	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	751	818	188			-	0	0	368	0	0
Stage 1	450	450	-			-	-	-	-	-	-
Stage 2	301	368	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	378	311	854			0	-	-	1191	-	0
Stage 1	642	572	-			0	-	-	-	-	0
Stage 2	751	621	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	336	0	854			-	-	-	1191	-	-
Mov Cap-2 Maneuver	336	0	-			-	-	-	-	-	-
Stage 1	642	0	-			-	-	-	-	-	-
Stage 2	668	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	0	3.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	336	854	1191	-
HCM Lane V/C Ratio	-	-	0.428	0.19	0.11	-
HCM Control Delay (s)	-	-	23.5	10.2	8.4	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	2.1	0.7	0.4	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	0	111	0	0	0	0	194	120	89	247	0
Future Vol, veh/h	75	0	111	0	0	0	0	194	120	89	247	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	100	0	148	0	0	0	0	259	160	119	329	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	906	992	329			-	0	0	425	0	0
Stage 1	567	567	-			-	-	-	-	-	-
Stage 2	339	425	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	307	246	712			0	-	-	1134	-	0
Stage 1	568	507	-			0	-	-	-	-	0
Stage 2	722	586	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	275	0	712			-	-	-	1134	-	-
Mov Cap-2 Maneuver	275	0	-			-	-	-	-	-	-
Stage 1	568	0	-			-	-	-	-	-	-
Stage 2	646	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17	0	2.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	275	712	1134	-
HCM Lane V/C Ratio	-	-	0.364	0.208	0.105	-
HCM Control Delay (s)	-	-	25.4	11.4	8.5	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0.8	0.3	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	128	4	146	0	0	0	0	209	115	113	163	0
Future Vol, veh/h	128	4	146	0	0	0	0	209	115	113	163	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	141	4	160	0	0	0	0	230	126	124	179	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	720	787	179			-	0	0	360	0	0
Stage 1	427	427	-			-	-	-	-	-	-
Stage 2	293	360	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	395	324	864			0	-	-	1199	-	0
Stage 1	658	585	-			0	-	-	-	-	0
Stage 2	757	626	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	354	0	864			-	-	-	1199	-	-
Mov Cap-2 Maneuver	354	0	-			-	-	-	-	-	-
Stage 1	658	0	-			-	-	-	-	-	-
Stage 2	679	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.4	0	3.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	354	864	1199	-
HCM Lane V/C Ratio	-	-	0.397	0.191	0.104	-
HCM Control Delay (s)	-	-	21.7	10.1	8.3	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0.7	0.3	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	91	0	111	0	0	0	0	210	120	104	262	0
Future Vol, veh/h	91	0	111	0	0	0	0	210	120	104	262	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	121	0	148	0	0	0	0	280	160	139	349	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	987	1073	349			-	0	0	446	0	0
Stage 1	627	627	-			-	-	-	-	-	-
Stage 2	360	446	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	274	220	694			0	-	-	1114	-	0
Stage 1	532	476	-			0	-	-	-	-	0
Stage 2	706	574	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	240	0	694			-	-	-	1114	-	-
Mov Cap-2 Maneuver	240	0	-			-	-	-	-	-	-
Stage 1	532	0	-			-	-	-	-	-	-
Stage 2	618	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.9	0	2.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	240	694	1114	-
HCM Lane V/C Ratio	-	-	0.506	0.213	0.124	-
HCM Control Delay (s)	-	-	34.4	11.6	8.7	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	2.6	0.8	0.4	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	141	4	146	0	0	0	0	222	115	125	175	0
Future Vol, veh/h	141	4	146	0	0	0	0	222	115	125	175	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	155	4	160	0	0	0	0	244	126	137	192	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	773	840	192			-	0	0	374	0	0
Stage 1	466	466	-			-	-	-	-	-	-
Stage 2	307	374	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	367	302	850			0	-	-	1184	-	0
Stage 1	632	562	-			0	-	-	-	-	0
Stage 2	746	618	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	324	0	850			-	-	-	1184	-	-
Mov Cap-2 Maneuver	324	0	-			-	-	-	-	-	-
Stage 1	632	0	-			-	-	-	-	-	-
Stage 2	659	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0	3.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	324	850	1184	-
HCM Lane V/C Ratio	-	-	0.478	0.194	0.116	-
HCM Control Delay (s)	-	-	25.9	10.3	8.4	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	2.5	0.7	0.4	-

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	2	71	0	151	0	113	81	216	116	1
Future Vol, veh/h	0	0	2	71	0	151	0	113	81	216	116	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	7	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	3	95	0	201	0	151	108	288	155	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1038	998	156	945	944	212	156	0	0	266	0	0
Stage 1	732	732	-	212	212	-	-	-	-	-	-	-
Stage 2	306	266	-	733	732	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	209	244	890	242	262	828	1424	-	-	1298	-	-
Stage 1	413	427	-	790	727	-	-	-	-	-	-	-
Stage 2	704	689	-	412	427	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	131	188	890	198	201	821	1424	-	-	1286	-	-
Mov Cap-2 Maneuver	131	188	-	198	201	-	-	-	-	-	-	-
Stage 1	413	331	-	783	720	-	-	-	-	-	-	-
Stage 2	531	683	-	319	331	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	19.8	0	5.6
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1424	-	-	890	198	821	1286	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.478	0.245	0.224	-	-
HCM Control Delay (s)	0	-	-	9.1	38.8	10.8	8.6	-	-
HCM Lane LOS	A	-	-	A	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	2.3	1	0.9	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	24	0	47	0	208	28	106	172	1
Future Vol, veh/h	1	0	0	24	0	47	0	208	28	106	172	1
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	3	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	26	0	52	0	229	31	116	189	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	693	685	191	671	670	248	190	0	0	263	0	0
Stage 1	422	422	-	248	248	-	-	-	-	-	-	-
Stage 2	271	263	-	423	422	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	358	371	851	370	378	791	1384	-	-	1301	-	-
Stage 1	609	588	-	756	701	-	-	-	-	-	-	-
Stage 2	735	691	-	609	588	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	311	336	850	343	342	788	1384	-	-	1296	-	-
Mov Cap-2 Maneuver	311	336	-	343	342	-	-	-	-	-	-	-
Stage 1	609	535	-	753	698	-	-	-	-	-	-	-
Stage 2	687	688	-	554	535	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.6	12.1	0	3.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1384	-	-	311	343	788	1296	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.077	0.066	0.09	-	-
HCM Control Delay (s)	0	-	-	16.6	16.4	9.9	8.1	-	-
HCM Lane LOS	A	-	-	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.2	0.3	-	-

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	2	71	0	151	0	129	81	216	131	1
Future Vol, veh/h	0	0	2	71	0	151	0	129	81	216	131	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	7	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	3	95	0	201	0	172	108	288	175	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1079	1039	176	986	985	233	176	0	0	287	0	0
Stage 1	752	752	-	233	233	-	-	-	-	-	-	-
Stage 2	327	287	-	753	752	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	196	231	867	227	248	806	1400	-	-	1275	-	-
Stage 1	402	418	-	770	712	-	-	-	-	-	-	-
Stage 2	686	674	-	402	418	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	121	177	867	185	190	799	1400	-	-	1264	-	-
Mov Cap-2 Maneuver	121	177	-	185	190	-	-	-	-	-	-	-
Stage 1	402	323	-	763	706	-	-	-	-	-	-	-
Stage 2	513	668	-	309	323	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	21.3	0	5.4
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1400	-	-	867	185	799	1264	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.512	0.252	0.228	-	-
HCM Control Delay (s)	0	-	-	9.2	43.2	11	8.7	-	-
HCM Lane LOS	A	-	-	A	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	2.6	1	0.9	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	24	0	47	0	221	28	106	184	1
Future Vol, veh/h	1	0	0	24	0	47	0	221	28	106	184	1
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	3	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	26	0	52	0	243	31	116	202	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	720	712	204	698	697	262	203	0	0	277	0	0
Stage 1	435	435	-	262	262	-	-	-	-	-	-	-
Stage 2	285	277	-	436	435	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	343	358	837	355	365	777	1369	-	-	1286	-	-
Stage 1	600	580	-	743	691	-	-	-	-	-	-	-
Stage 2	722	681	-	599	580	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	298	324	836	329	330	774	1369	-	-	1281	-	-
Mov Cap-2 Maneuver	298	324	-	329	330	-	-	-	-	-	-	-
Stage 1	600	527	-	740	688	-	-	-	-	-	-	-
Stage 2	674	678	-	544	527	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.1	12.3	0	2.9
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1369	-	-	298	329	774	1281	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.08	0.067	0.091	-	-
HCM Control Delay (s)	0	-	-	17.1	16.9	10	8.1	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.2	0.3	-	-

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	2	71	0	151	0	120	81	216	121	1
Future Vol, veh/h	0	0	2	71	0	151	0	120	81	216	121	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	7	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	3	95	0	201	0	160	108	288	161	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1053	1013	162	960	959	221	162	0	0	275	0	0
Stage 1	738	738	-	221	221	-	-	-	-	-	-	-
Stage 2	315	275	-	739	738	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	204	239	883	236	257	819	1417	-	-	1288	-	-
Stage 1	410	424	-	781	720	-	-	-	-	-	-	-
Stage 2	696	683	-	409	424	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	127	183	883	193	197	812	1417	-	-	1277	-	-
Mov Cap-2 Maneuver	127	183	-	193	197	-	-	-	-	-	-	-
Stage 1	410	328	-	774	714	-	-	-	-	-	-	-
Stage 2	523	677	-	316	328	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	20.3	0	5.5
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1417	-	-	883	193	812	1277	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.491	0.248	0.226	-	-
HCM Control Delay (s)	0	-	-	9.1	40.4	10.9	8.6	-	-
HCM Lane LOS	A	-	-	A	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	2.4	1	0.9	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	24	0	47	0	213	28	106	178	1
Future Vol, veh/h	1	0	0	24	0	47	0	213	28	106	178	1
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	3	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	26	0	52	0	234	31	116	196	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	705	697	198	683	682	253	197	0	0	268	0	0
Stage 1	429	429	-	253	253	-	-	-	-	-	-	-
Stage 2	276	268	-	430	429	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	351	365	843	363	372	786	1376	-	-	1296	-	-
Stage 1	604	584	-	751	698	-	-	-	-	-	-	-
Stage 2	730	687	-	603	584	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	305	331	842	337	337	783	1376	-	-	1291	-	-
Mov Cap-2 Maneuver	305	331	-	337	337	-	-	-	-	-	-	-
Stage 1	604	531	-	748	695	-	-	-	-	-	-	-
Stage 2	682	684	-	548	531	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.8	12.2	0	3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1376	-	-	305	337	783	1291	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.078	0.066	0.09	-	-
HCM Control Delay (s)	0	-	-	16.8	16.6	9.9	8.1	-	-
HCM Lane LOS	A	-	-	C	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.2	0.3	-	-

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	2	71	0	151	0	136	81	216	136	1
Future Vol, veh/h	0	0	2	71	0	151	0	136	81	216	136	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	7	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	3	95	0	201	0	181	108	288	181	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1094	1054	182	1001	1000	242	182	0	0	296	0	0
Stage 1	758	758	-	242	242	-	-	-	-	-	-	-
Stage 2	336	296	-	759	758	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	191	226	861	222	243	797	1393	-	-	1265	-	-
Stage 1	399	415	-	762	705	-	-	-	-	-	-	-
Stage 2	678	668	-	399	415	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	117	172	861	180	185	790	1393	-	-	1254	-	-
Mov Cap-2 Maneuver	117	172	-	180	185	-	-	-	-	-	-	-
Stage 1	399	320	-	755	699	-	-	-	-	-	-	-
Stage 2	505	662	-	306	320	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	22	0	5.3
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1393	-	-	861	180	790	1254	-	-
HCM Lane V/C Ratio	-	-	-	0.003	0.526	0.255	0.23	-	-
HCM Control Delay (s)	0	-	-	9.2	45.3	11.1	8.7	-	-
HCM Lane LOS	A	-	-	A	E	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	2.7	1	0.9	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	0	24	0	47	0	226	28	106	190	1
Future Vol, veh/h	1	0	0	24	0	47	0	226	28	106	190	1
Conflicting Peds, #/hr	0	0	1	0	0	0	0	0	3	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	0	26	0	52	0	248	31	116	209	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	732	724	211	710	709	267	210	0	0	282	0	0
Stage 1	442	442	-	267	267	-	-	-	-	-	-	-
Stage 2	290	282	-	443	442	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	337	352	829	348	359	772	1361	-	-	1280	-	-
Stage 1	594	576	-	738	688	-	-	-	-	-	-	-
Stage 2	718	678	-	594	576	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	293	319	828	322	325	769	1361	-	-	1275	-	-
Mov Cap-2 Maneuver	293	319	-	322	325	-	-	-	-	-	-	-
Stage 1	594	524	-	735	685	-	-	-	-	-	-	-
Stage 2	670	675	-	539	524	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.3	12.4	0	2.9
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1361	-	-	293	322	769	1275	-	-
HCM Lane V/C Ratio	-	-	-	0.004	0.082	0.067	0.091	-	-
HCM Control Delay (s)	0	-	-	17.3	17.2	10	8.1	-	-
HCM Lane LOS	A	-	-	C	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.2	0.3	-	-

APPENDIX E

CALTRANS ANALYSIS

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	87	0	225	77	166	0	0	247	128
Future Vol, veh/h	0	0	0	87	0	225	77	166	0	0	247	128
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	8	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	112	0	288	99	213	0	0	317	164

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	810	892	213	481	0	-	-	-	0
Stage 1	411	411	-	-	-	-	-	-	-
Stage 2	399	481	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	349	281	827	1082	-	0	0	-	-
Stage 1	669	595	-	-	-	0	0	-	-
Stage 2	678	554	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	317	0	827	1082	-	-	-	-	-
Mov Cap-2 Maneuver	317	0	-	-	-	-	-	-	-
Stage 1	608	0	-	-	-	-	-	-	-
Stage 2	678	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	2.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1082	-	317	827	-	-
HCM Lane V/C Ratio	0.091	-	0.352	0.349	-	-
HCM Control Delay (s)	8.7	-	22.4	11.7	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.5	1.6	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	50	0	148	50	277	0	0	228	100
Future Vol, veh/h	0	0	0	50	0	148	50	277	0	0	228	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	54	0	161	54	301	0	0	248	109

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	712	766	301	357	0	-	-	-	0
Stage 1	409	409	-	-	-	-	-	-	-
Stage 2	303	357	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	399	333	739	1202	-	0	0	-	-
Stage 1	671	596	-	-	-	0	0	-	-
Stage 2	749	628	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	381	0	739	1202	-	-	-	-	-
Mov Cap-2 Maneuver	381	0	-	-	-	-	-	-	-
Stage 1	641	0	-	-	-	-	-	-	-
Stage 2	749	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1202	-	381	739	-	-
HCM Lane V/C Ratio	0.045	-	0.143	0.218	-	-
HCM Control Delay (s)	8.1	-	16	11.2	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.8	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	87	0	241	77	198	0	0	278	143
Future Vol, veh/h	0	0	0	87	0	241	77	198	0	0	278	143
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	8	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	112	0	309	99	254	0	0	356	183

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	900	991	254	539	0	-	-	-	0
Stage 1	452	452	-	-	-	-	-	-	-
Stage 2	448	539	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	309	246	785	1029	-	0	0	-	-
Stage 1	641	570	-	-	-	0	0	-	-
Stage 2	644	522	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	279	0	785	1029	-	-	-	-	-
Mov Cap-2 Maneuver	279	0	-	-	-	-	-	-	-
Stage 1	579	0	-	-	-	-	-	-	-
Stage 2	644	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.1	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1029	-	279	785	-	-
HCM Lane V/C Ratio	0.096	-	0.4	0.394	-	-
HCM Control Delay (s)	8.9	-	26.2	12.5	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.8	1.9	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	50	0	161	50	303	0	0	252	112
Future Vol, veh/h	0	0	0	50	0	161	50	303	0	0	252	112
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	54	0	175	54	329	0	0	274	122

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	772	833	329	396	0	-	-	-	0
Stage 1	437	437	-	-	-	-	-	-	-
Stage 2	335	396	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	368	304	712	1163	-	0	0	-	-
Stage 1	651	579	-	-	-	0	0	-	-
Stage 2	725	604	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	351	0	712	1163	-	-	-	-	-
Mov Cap-2 Maneuver	351	0	-	-	-	-	-	-	-
Stage 1	621	0	-	-	-	-	-	-	-
Stage 2	725	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1163	-	351	712	-	-
HCM Lane V/C Ratio	0.047	-	0.155	0.246	-	-
HCM Control Delay (s)	8.2	-	17.1	11.7	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	1	-	-

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	87	0	233	79	184	0	0	259	140
Future Vol, veh/h	0	0	0	87	0	233	79	184	0	0	259	140
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	8	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	112	0	299	101	236	0	0	332	179

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	860	949	236	511	0	-	-	-	0
Stage 1	438	438	-	-	-	-	-	-	-
Stage 2	422	511	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	326	260	803	1054	-	0	0	-	-
Stage 1	651	579	-	-	-	0	0	-	-
Stage 2	662	537	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	295	0	803	1054	-	-	-	-	-
Mov Cap-2 Maneuver	295	0	-	-	-	-	-	-	-
Stage 1	589	0	-	-	-	-	-	-	-
Stage 2	662	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	2.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1054	-	295	803	-	-
HCM Lane V/C Ratio	0.096	-	0.378	0.372	-	-
HCM Control Delay (s)	8.8	-	24.4	12.1	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.3	-	1.7	1.7	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	51	0	155	51	291	0	0	239	110
Future Vol, veh/h	0	0	0	51	0	155	51	291	0	0	239	110
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	55	0	168	55	316	0	0	260	120

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	746	806	316	380	0	-	-	-	0
Stage 1	426	426	-	-	-	-	-	-	-
Stage 2	320	380	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	381	316	724	1178	-	0	0	-	-
Stage 1	659	586	-	-	-	0	0	-	-
Stage 2	736	614	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	363	0	724	1178	-	-	-	-	-
Mov Cap-2 Maneuver	363	0	-	-	-	-	-	-	-
Stage 1	628	0	-	-	-	-	-	-	-
Stage 2	736	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1178	-	363	724	-	-
HCM Lane V/C Ratio	0.047	-	0.153	0.233	-	-
HCM Control Delay (s)	8.2	-	16.7	11.5	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.9	-	-

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	87	0	249	79	216	0	0	290	155
Future Vol, veh/h	0	0	0	87	0	249	79	216	0	0	290	155
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	8	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	112	0	319	101	277	0	0	372	199

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	951	1050	277	571	0	-	-	-	0
Stage 1	479	479	-	-	-	-	-	-	-
Stage 2	472	571	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	288	227	762	1002	-	0	0	-	-
Stage 1	623	555	-	-	-	0	0	-	-
Stage 2	628	505	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	259	0	762	1002	-	-	-	-	-
Mov Cap-2 Maneuver	259	0	-	-	-	-	-	-	-
Stage 1	560	0	-	-	-	-	-	-	-
Stage 2	628	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.2	2.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1002	-	259	762	-	-
HCM Lane V/C Ratio	0.101	-	0.431	0.419	-	-
HCM Control Delay (s)	9	-	29	13.1	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.3	-	2	2.1	-	-

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	51	0	168	51	317	0	0	263	122
Future Vol, veh/h	0	0	0	51	0	168	51	317	0	0	263	122
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	5	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	100	150	-	-	-	-	0
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	55	0	183	55	345	0	0	286	133

Major/Minor	Minor1		Major1		Major2				
Conflicting Flow All	808	874	345	419	0	-	-	-	0
Stage 1	455	455	-	-	-	-	-	-	-
Stage 2	353	419	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	350	288	698	1140	-	0	0	-	-
Stage 1	639	569	-	-	-	0	0	-	-
Stage 2	711	590	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	333	0	698	1140	-	-	-	-	-
Mov Cap-2 Maneuver	333	0	-	-	-	-	-	-	-
Stage 1	608	0	-	-	-	-	-	-	-
Stage 2	711	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	1140	-	333	698	-	-
HCM Lane V/C Ratio	0.049	-	0.166	0.262	-	-
HCM Control Delay (s)	8.3	-	18	12	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	1	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	62	0	110	0	0	0	0	188	119	81	243	0
Future Vol, veh/h	62	0	110	0	0	0	0	188	119	81	243	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	83	0	147	0	0	0	0	251	159	108	324	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	871	956	324			-	0	0	416	0	0
Stage 1	540	540	-			-	-	-	-	-	-
Stage 2	331	416	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	322	258	717			0	-	-	1143	-	0
Stage 1	584	521	-			0	-	-	-	-	0
Stage 2	728	592	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	292	0	717			-	-	-	1143	-	-
Mov Cap-2 Maneuver	292	0	-			-	-	-	-	-	-
Stage 1	584	0	-			-	-	-	-	-	-
Stage 2	660	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0	2.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	292	717	1143	-
HCM Lane V/C Ratio	-	-	0.283	0.205	0.094	-
HCM Control Delay (s)	-	-	22.1	11.3	8.5	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.1	0.8	0.3	-

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	118	4	144	0	0	0	0	204	115	107	159	0
Future Vol, veh/h	118	4	144	0	0	0	0	204	115	107	159	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	130	4	158	0	0	0	0	224	126	118	175	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	698	765	175			-	0	0	354	0	0
Stage 1	411	411	-			-	-	-	-	-	-
Stage 2	287	354	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	407	333	868			0	-	-	1205	-	0
Stage 1	669	595	-			0	-	-	-	-	0
Stage 2	762	630	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	367	0	868			-	-	-	1205	-	-
Mov Cap-2 Maneuver	367	0	-			-	-	-	-	-	-
Stage 1	669	0	-			-	-	-	-	-	-
Stage 2	687	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.5	0	3.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	367	868	1205	-
HCM Lane V/C Ratio	-	-	0.353	0.187	0.098	-
HCM Control Delay (s)	-	-	20.1	10.1	8.3	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0.7	0.3	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	78	0	110	0	0	0	0	204	119	96	258	0
Future Vol, veh/h	78	0	110	0	0	0	0	204	119	96	258	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	104	0	147	0	0	0	0	272	159	128	344	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	952	1037	344			-	0	0	437	0	0
Stage 1	600	600	-			-	-	-	-	-	-
Stage 2	352	437	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	288	231	699			0	-	-	1123	-	0
Stage 1	548	490	-			0	-	-	-	-	0
Stage 2	712	579	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	255	0	699			-	-	-	1123	-	-
Mov Cap-2 Maneuver	255	0	-			-	-	-	-	-	-
Stage 1	548	0	-			-	-	-	-	-	-
Stage 2	631	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.6	0	2.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	255	699	1123	-
HCM Lane V/C Ratio	-	-	0.408	0.21	0.114	-
HCM Control Delay (s)	-	-	28.5	11.5	8.6	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0.8	0.4	-

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	131	4	144	0	0	0	0	217	115	119	171	0
Future Vol, veh/h	131	4	144	0	0	0	0	217	115	119	171	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	144	4	158	0	0	0	0	238	126	131	188	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	751	818	188			-	0	0	368	0	0
Stage 1	450	450	-			-	-	-	-	-	-
Stage 2	301	368	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	378	311	854			0	-	-	1191	-	0
Stage 1	642	572	-			0	-	-	-	-	0
Stage 2	751	621	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	336	0	854			-	-	-	1191	-	-
Mov Cap-2 Maneuver	336	0	-			-	-	-	-	-	-
Stage 1	642	0	-			-	-	-	-	-	-
Stage 2	668	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	0	3.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	336	854	1191	-
HCM Lane V/C Ratio	-	-	0.428	0.19	0.11	-
HCM Control Delay (s)	-	-	23.5	10.2	8.4	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	2.1	0.7	0.4	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	0	111	0	0	0	0	194	120	89	247	0
Future Vol, veh/h	75	0	111	0	0	0	0	194	120	89	247	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	100	0	148	0	0	0	0	259	160	119	329	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	906	992	329			-	0	0	425	0	0
Stage 1	567	567	-			-	-	-	-	-	-
Stage 2	339	425	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	307	246	712			0	-	-	1134	-	0
Stage 1	568	507	-			0	-	-	-	-	0
Stage 2	722	586	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	275	0	712			-	-	-	1134	-	-
Mov Cap-2 Maneuver	275	0	-			-	-	-	-	-	-
Stage 1	568	0	-			-	-	-	-	-	-
Stage 2	646	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17	0	2.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	275	712	1134	-
HCM Lane V/C Ratio	-	-	0.364	0.208	0.105	-
HCM Control Delay (s)	-	-	25.4	11.4	8.5	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.6	0.8	0.3	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	128	4	146	0	0	0	0	209	115	113	163	0
Future Vol, veh/h	128	4	146	0	0	0	0	209	115	113	163	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	141	4	160	0	0	0	0	230	126	124	179	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	720	787	179			-	0	0	360	0	0
Stage 1	427	427	-			-	-	-	-	-	-
Stage 2	293	360	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	395	324	864			0	-	-	1199	-	0
Stage 1	658	585	-			0	-	-	-	-	0
Stage 2	757	626	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	354	0	864			-	-	-	1199	-	-
Mov Cap-2 Maneuver	354	0	-			-	-	-	-	-	-
Stage 1	658	0	-			-	-	-	-	-	-
Stage 2	679	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.4	0	3.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	354	864	1199	-
HCM Lane V/C Ratio	-	-	0.397	0.191	0.104	-
HCM Control Delay (s)	-	-	21.7	10.1	8.3	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	1.9	0.7	0.3	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	91	0	111	0	0	0	0	210	120	104	262	0
Future Vol, veh/h	91	0	111	0	0	0	0	210	120	104	262	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	121	0	148	0	0	0	0	280	160	139	349	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	987	1073	349			-	0	0	446	0	0
Stage 1	627	627	-			-	-	-	-	-	-
Stage 2	360	446	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	274	220	694			0	-	-	1114	-	0
Stage 1	532	476	-			0	-	-	-	-	0
Stage 2	706	574	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	240	0	694			-	-	-	1114	-	-
Mov Cap-2 Maneuver	240	0	-			-	-	-	-	-	-
Stage 1	532	0	-			-	-	-	-	-	-
Stage 2	618	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.9	0	2.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	240	694	1114	-
HCM Lane V/C Ratio	-	-	0.506	0.213	0.124	-
HCM Control Delay (s)	-	-	34.4	11.6	8.7	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	2.6	0.8	0.4	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	141	4	146	0	0	0	0	222	115	125	175	0
Future Vol, veh/h	141	4	146	0	0	0	0	222	115	125	175	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	4	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	150	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	155	4	160	0	0	0	0	244	126	137	192	0

Major/Minor	Minor2					Major1			Major2		
Conflicting Flow All	773	840	192			-	0	0	374	0	0
Stage 1	466	466	-			-	-	-	-	-	-
Stage 2	307	374	-			-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22			-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-			-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-			-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318			-	-	-	2.218	-	-
Pot Cap-1 Maneuver	367	302	850			0	-	-	1184	-	0
Stage 1	632	562	-			0	-	-	-	-	0
Stage 2	746	618	-			0	-	-	-	-	0
Platoon blocked, %							-	-		-	
Mov Cap-1 Maneuver	324	0	850			-	-	-	1184	-	-
Mov Cap-2 Maneuver	324	0	-			-	-	-	-	-	-
Stage 1	632	0	-			-	-	-	-	-	-
Stage 2	659	0	-			-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.9	0	3.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	324	850	1184	-
HCM Lane V/C Ratio	-	-	0.478	0.194	0.116	-
HCM Control Delay (s)	-	-	25.9	10.3	8.4	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	2.5	0.7	0.4	-

APPENDIX F

TRAFFIC SIGNAL WARRANT ANALYSES

Appendix Table F-1
TRAFFIC SIGNAL WARRANT VOLUMES WORKSHEET
Crown Valley Road/Sierra Highway

HOUR BEGINNING	EXISTING YEAR 2019 VOLUMES [1]				TOTAL EXISTING INTERSECTION VOLUME	PROPOSED PROJECT VOLUMES [2]				RELATED PROJECTS VOLUMES [3]				FUTURE YEAR 2022 WITH PROJECT AND RELATED PROJECTS VOLUMES [4]				TOTAL FUTURE CUMULATIVE INTERSECTION VOLUME
	Major Street		Minor Street			Major Street		Minor Street		Major Street		Minor Street		Major Street		Minor Street		
	Sierra Highway		Crown Valley Road			Sierra Highway		Crown Valley Road		Sierra Highway		Crown Valley Road		Sierra Highway		Crown Valley Road		
	EB	WB	NB	SB		EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	
12:00 AM	18	6	35	9	68									18	6	35	9	68
1:00 AM	12	10	21	3	46									12	10	21	3	46
2:00 AM	12	13	37	5	67									12	13	37	5	67
3:00 AM	35	42	52	10	139									35	42	52	10	139
4:00 AM	52	413	230	52	747									52	413	230	52	747
5:00 AM	44	373	356	63	836									44	373	356	63	836
6:00 AM	87	317	384	71	859									87	317	384	71	859
7:00 AM	**189**	**313**	**453**	**115**	**1070**	62	12	47	4	8	34	25	2	***259***	***359***	***525***	***121***	***1264***
8:00 AM	**165**	**231**	**469**	**113**	**978**	62	12	47	4	8	34	25	2	***235***	***277***	***541***	***119***	***1172***
9:00 AM	111	158	359	85	713									111	158	359	85	713
10:00 AM	159	139	352	98	748									159	139	352	98	748
11:00 AM	163	155	379	119	816									163	155	379	119	816
12:00 PM	**199**	**147**	**571**	**105**	**1022**									**199**	**147**	**571**	**105**	**1022**
1:00 PM	174	155	519	91	939									174	155	519	91	939
2:00 PM	***282***	***181***	***522***	***158***	***1143***									**282**	**181**	**522**	**158**	**1143**
3:00 PM	***373***	***127***	***470***	***128***	***1098***									**373**	**127**	**470**	**128**	**1098**
4:00 PM	***501***	***122***	***412***	***163***	***1198***	47	10	39	3	7	27	20	2	***555***	***159***	***471***	***168***	***1353***
5:00 PM	***651***	***108***	***402***	***120***	***1281***	47	10	39	3	7	27	20	2	***705***	***145***	***461***	***125***	***1436***
6:00 PM	**459**	**108**	**361**	**86**	**1014**									**459**	**108**	**361**	**86**	**1014**
7:00 PM	243	73	281	90	687									243	73	281	90	687
8:00 PM	108	40	178	66	392									108	40	178	66	392
9:00 PM	79	23	136	40	278									79	23	136	40	278
10:00 PM	37	19	94	65	215									37	19	94	65	215
11:00 PM	26	7	52	24	109									26	7	52	24	109

[1] Counts conducted by The Traffic Solution on November 5 and 6, 2019. The hourly volumes shown for each approach represent the highest hourly vehicular volume documented over the two count days.
[2] Proposed project volumes are based on the project trip generation forecast presented in Table 7-1, the project trip distribtution patterns presented in Figure 7-1, and the project trip assignments presented in Figures 7-2 and 7-3.
[3] Related projects volumes are based on the related projects trip generation forecast presented in Table 6-1 and the trip assignments presented in Figures 6-2 and 6-3.
[4] Future year 2022 volumes determined by adding project and related project volumes to existing year 2019 volumes. In order to provide a conservative analysis, the peak hour project and related projects volumes have been applied to all hours in the peak morning and afternoon commute periods.

Year 2019 Existing Conditions

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE November 2019
CALC GT DATE January 2020
CHK _____ DATE _____

DIST ____ CO ____ RTE ____ PM ____

Major St: Sierra Highway — Critical Approach Speed 45 mph
Minor St: Crown Valley Road — Critical Approach Speed 45 mph

Speed limit or critical speed on major street traffic > 40 mph..... ☑
or
In built up area of isolated community of < 10,000 population..... ☑
} **RURAL (R)**

☐ **URBAN (U)**

WARRANT 1 - Eight Hour Vehicular Volume **SATISFIED YES ☐ NO ☑**
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume **100% SATISFIED YES ☐ NO ☑**
80% SATISFIED YES ☑ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)											
	U	R	U	R								
APPROACH LANES	1		2 or More		7:00 AM	8:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM / Hour
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	502	396	346	463	500	623	759	567
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	453	469	571	522	470	412	402	361

Condition B - Interruption of Continuous Traffic **100% SATISFIED YES ☐ NO ☑**
80% SATISFIED YES ☐ NO ☑

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)											
	U	R	U	R								
APPROACH LANES	1		2 or More		7:00 AM	8:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM / Hour
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	502	396	346	463	500	623	759	567
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	453	469	571	522	470	412	402	361

Combination of Conditions A & B **SATISFIED YES ☐ NO ☑**

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME	✓	Yes ☐ No ☑
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☑

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Year 2019 Existing Conditions

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☑ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	2:00 PM	3:00 PM	4:00 PM	5:00 PM	Hour
Both Approaches - Major Street		✓	463	500	623	759	
Higher Approach - Minor Street		✓	522	470	412	402	

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☑	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☑ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☐
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐	No ☐

PART B **SATISFIED YES ☑ NO ☐**

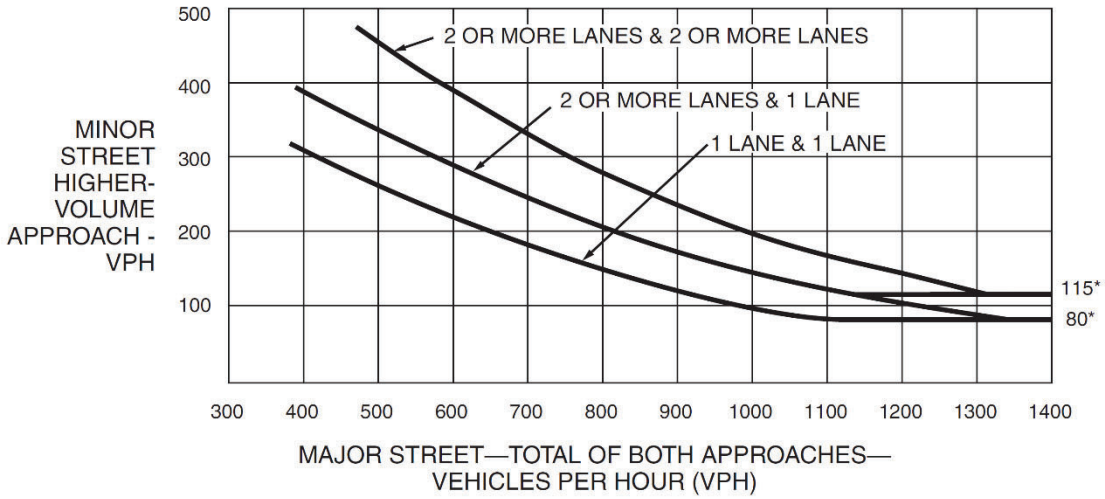
APPROACH LANES	One	2 or More	5:00 PM	Hour
Both Approaches - Major Street		✓	789	
Higher Approach - Minor Street		✓	369	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☑	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Year 2019 Existing Conditions

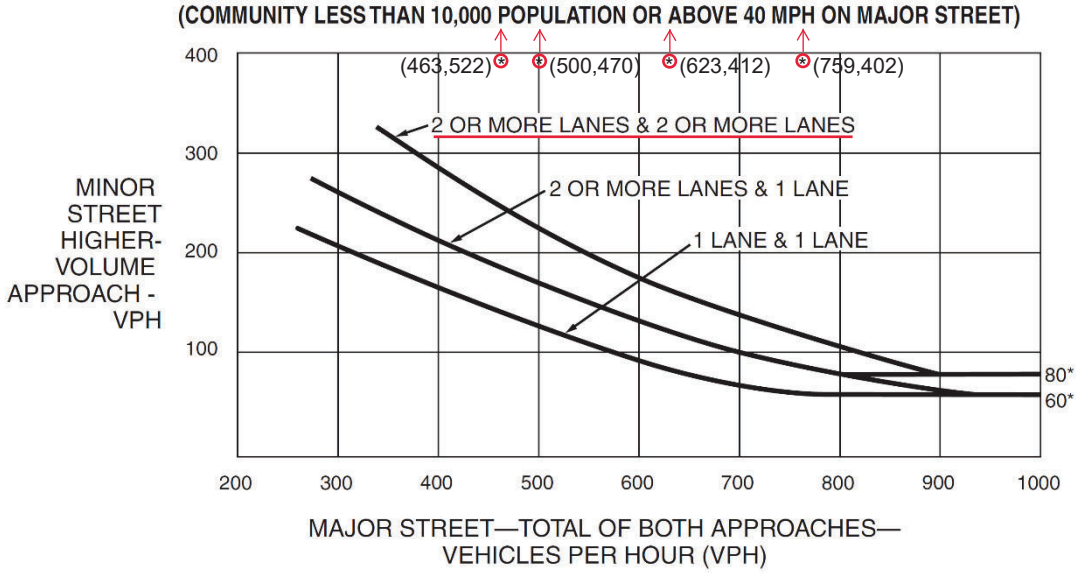
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

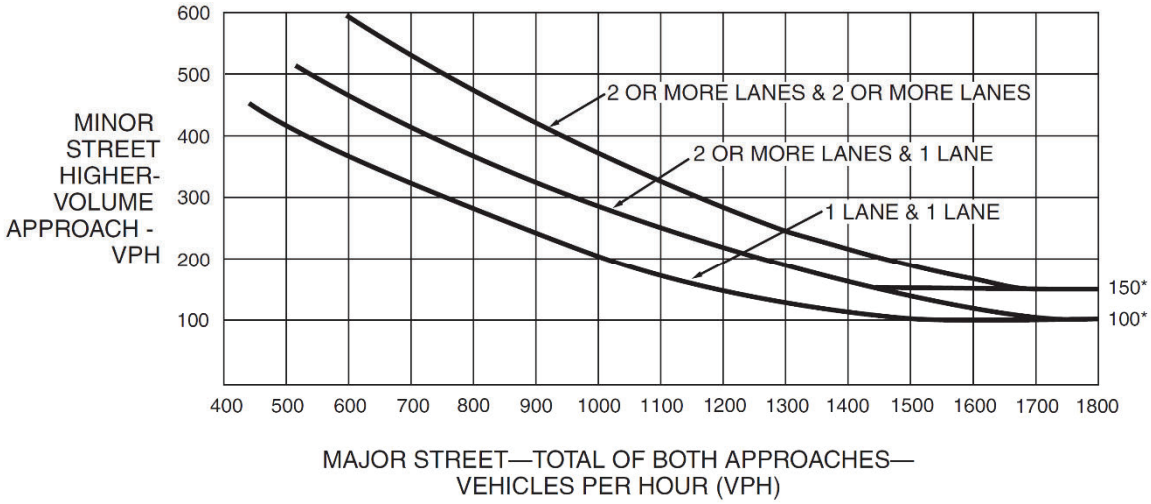
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Year 2019 Existing Conditions

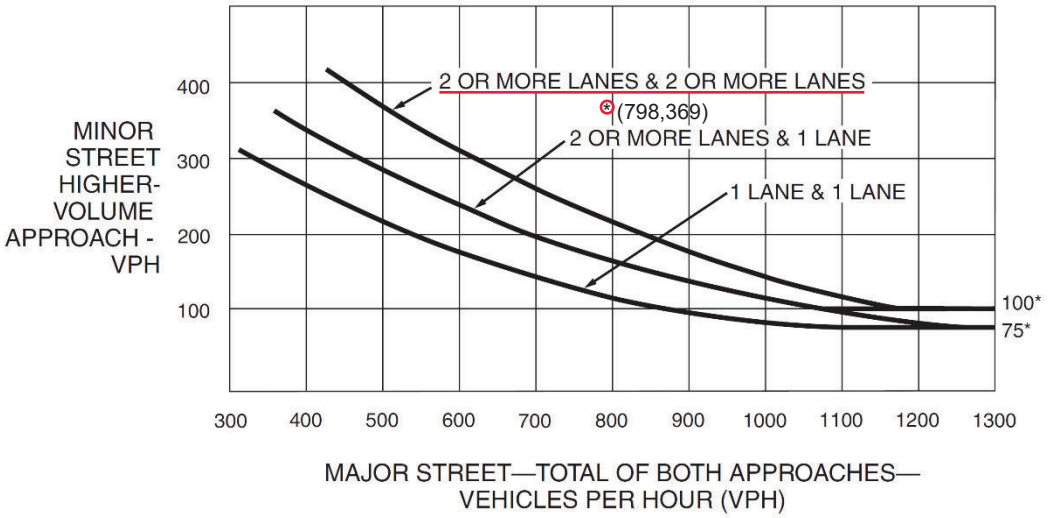
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*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 approach with one lane.

Year 2019 Existing Conditions

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 4 of 5)

WARRANT 6 - Coordinated Signal System (All Parts Must Be Satisfied) **SATISFIED YES ☐ NO ☐**

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	
≥ 1000 ft	N _____ ft, S _____ ft, E _____ ft, W _____ ft	Yes ☐ No ☐
On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning.		Yes ☐ No ☐
OR, On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will collectively provide a progressive operation.		

WARRANT 7 - Crash Experience Warrant (All Parts Must Be Satisfied) **SATISFIED YES ☐ NO ☑**

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.			Yes ☐ No ☑
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.		Yes ☐ No ☑
5 OR MORE	5/26/2018; 11/16/2017		
REQUIREMENTS	CONDITIONS	✓	
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume		Yes ☐ No ☑
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic		
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 80% of Figure 4C-5 through Figure 4C-8		

WARRANT 8 - Roadway Network (All Parts Must Be Satisfied) **SATISFIED YES ☐ NO ☐**

MINIMUM VOLUME REQUIREMENTS	ENTERING VOLUMES - ALL APPROACHES		✓	FULFILLED
1000 Veh/Hr	During Typical Weekday Peak Hour _____ Veh/Hr and has 5-year projected traffic volumes that meet one or more of Warrants 1, 2, and 3 during an average weekday.			Yes ☐ No ☐
	OR During Each of Any 5 Hrs. of a Sat. or Sun _____ Veh/Hr			
CHARACTERISTICS OF MAJOR ROUTES		MAJOR ROUTE A	MAJOR ROUTE B	
Hwy. System Serving as Principal Network for Through Traffic				
Rural or Suburban Highway Outside Of, Entering, or Traversing a City				
Appears as Major Route on an Official Plan				
Any Major Route Characteristics Met, Both Streets				Yes ☐ No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Year 2022 Future Cumulative Conditions

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 1 of 5)

COUNT DATE November 2019
CALC GT DATE January 2020
CHK _____ DATE _____

DIST ____ CO ____ RTE ____ PM ____

Major St: Sierra Highway — Critical Approach Speed 45 mph
Minor St: Crown Valley Road — Critical Approach Speed 45 mph

Speed limit or critical speed on major street traffic > 40 mph..... ☑
or
In built up area of isolated community of < 10,000 population..... ☑
} **RURAL (R)**

☐ **URBAN (U)**

WARRANT 1 - Eight Hour Vehicular Volume **SATISFIED YES ☐ NO ☑**
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume **100% SATISFIED YES ☐ NO ☑**
80% SATISFIED YES ☑ NO ☐

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)											
	U	R	U	R								
APPROACH LANES	1		2 or More		7:00 AM	8:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM / Hour
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	618	512	346	463	500	714	850	567
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	525	541	571	522	470	471	461	361

Condition B - Interruption of Continuous Traffic **100% SATISFIED YES ☐ NO ☑**
80% SATISFIED YES ☐ NO ☑

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)											
	U	R	U	R								
APPROACH LANES	1		2 or More		7:00 AM	8:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM / Hour
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	618	512	346	463	500	714	850	567
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	525	541	571	522	470	471	461	361

Combination of Conditions A & B **SATISFIED YES ☐ NO ☑**

REQUIREMENT	CONDITION	✓	FULFILLED
TWO CONDITIONS SATISFIED 80%	A. MINIMUM VEHICULAR VOLUME	✓	Yes ☐ No ☑
	AND, B. INTERRUPTION OF CONTINUOUS TRAFFIC		
AND, AN ADEQUATE TRIAL OF OTHER ALTERNATIVES THAT COULD CAUSE LESS DELAY AND INCONVENIENCE TO TRAFFIC HAS FAILED TO SOLVE THE TRAFFIC PROBLEMS			Yes ☐ No ☑

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Year 2022 Future Cumulative Conditions

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet (Sheet 2 of 5)

WARRANT 2 - Four Hour Vehicular Volume **SATISFIED* YES ☑ NO ☐**

Record hourly vehicular volumes for any four hours of an average day.

APPROACH LANES	One	2 or More	7:00 AM	8:00 AM	4:00 PM	5:00 PM	Hour
Both Approaches - Major Street		✓	618	512	714	850	
Higher Approach - Minor Street		✓	525	541	471	461	

*All plotted points fall above the applicable curve in Figure 4C-1. (URBAN AREAS)	Yes ☐	No ☐
OR, All plotted points fall above the applicable curve in Figure 4C-2. (RURAL AREAS)	Yes ☑	No ☐

WARRANT 3 - Peak Hour **SATISFIED YES ☑ NO ☐**
(Part A or Part B must be satisfied)

PART A **SATISFIED YES ☐ NO ☐**

(All parts 1, 2, and 3 below must be satisfied for the same one hour, for any four consecutive 15-minute periods)

1. The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one-lane approach, or five vehicle-hours for a two-lane approach; AND	Yes ☐	No ☐
2. The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes; AND	Yes ☐	No ☐
3. The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches.	Yes ☐	No ☐

PART B **SATISFIED YES ☑ NO ☐**

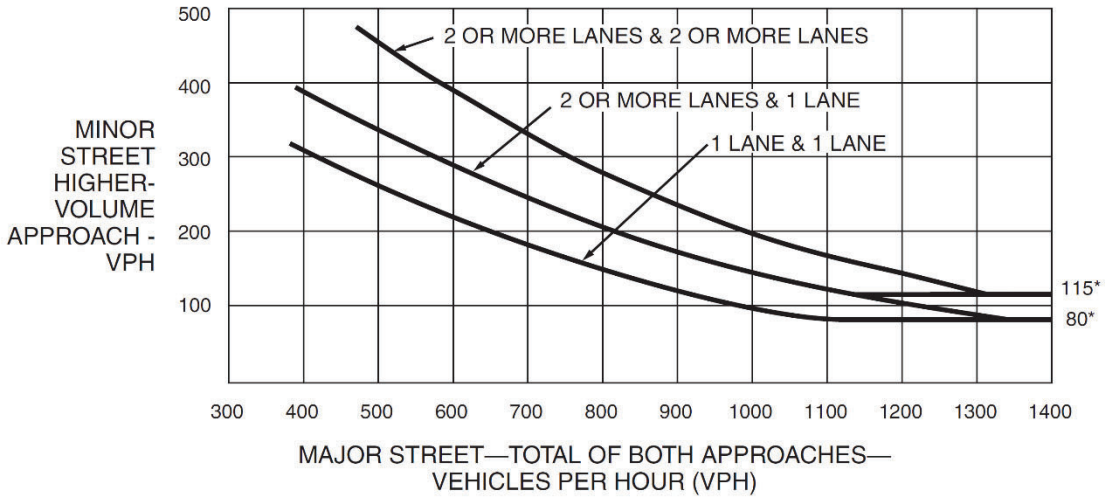
APPROACH LANES	One	2 or More	5:00 PM	Hour
Both Approaches - Major Street		✓	889	
Higher Approach - Minor Street		✓	428	

The plotted point falls above the applicable curve in Figure 4C-3. (URBAN AREAS)	Yes ☐	No ☐
OR, The plotted point falls above the applicable curve in Figure 4C-4. (RURAL AREAS)	Yes ☑	No ☐

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Year 2022 Future Cumulative Conditions

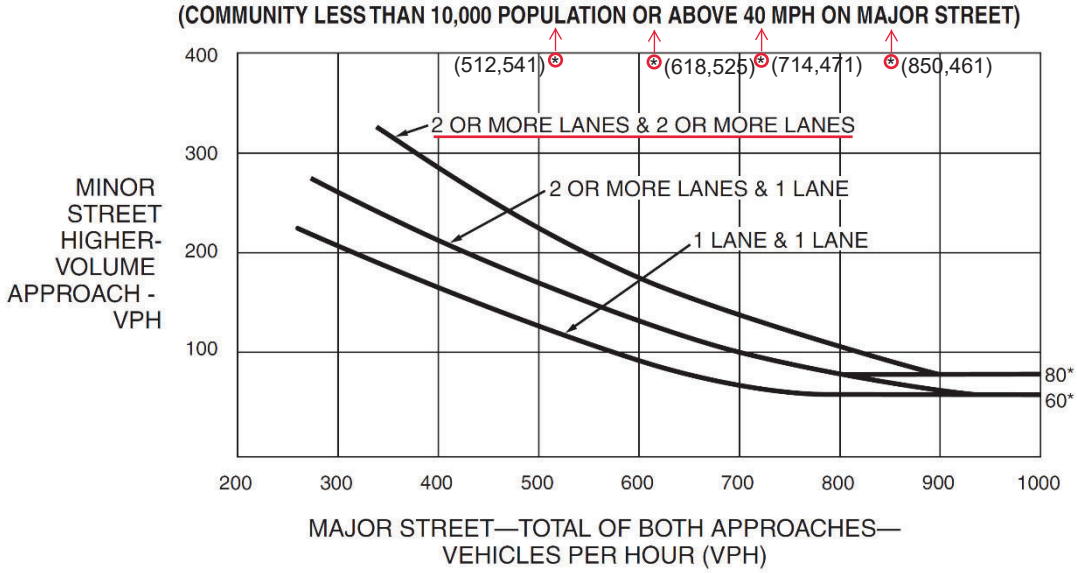
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

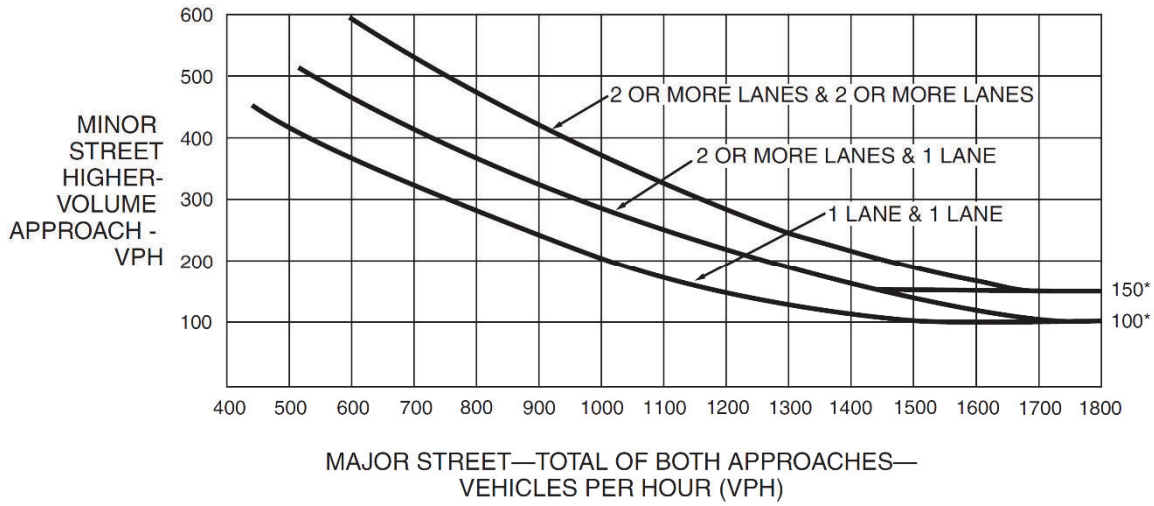
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Year 2022 Future Cumulative Conditions

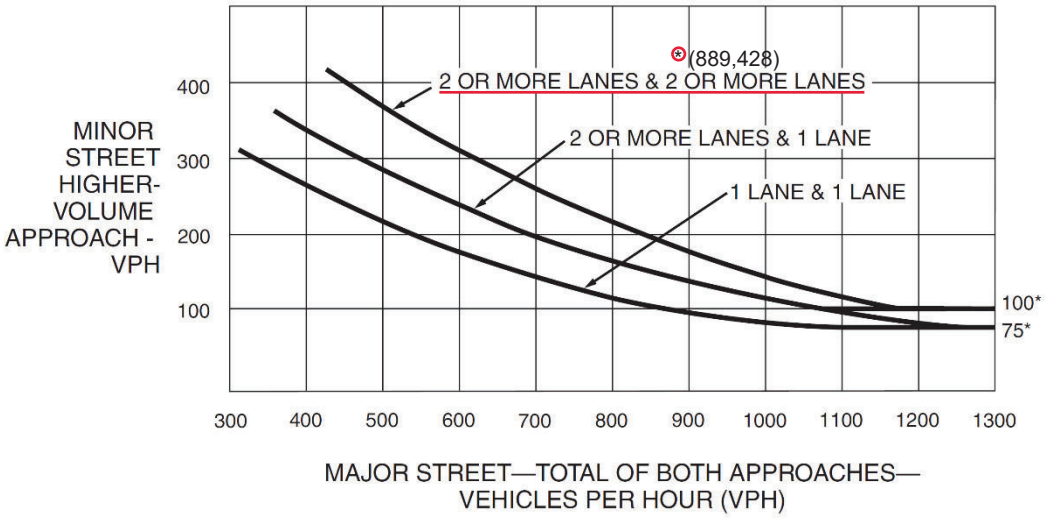
Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*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 approach with one lane.

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT:	LLG - PASADENA
PROJECT:	ACTON
LOCATION:	CROWN VALLEY ROAD N/O SIERRA HIGHWAY
DATE:	TUESDAY. NOVEMBER 05, 2019
FILE NO:	1_ADT

DIRECTION:	NORTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	2	0	3	0	5
01:00	1	0	0	1	2
02:00	3	1	0	0	4
03:00	1	0	0	1	2
04:00	6	2	4	5	17
05:00	1	9	12	3	25
06:00	3	8	8	11	30
07:00	14	13	23	15	65
08:00	16	13	21	21	71
09:00	12	20	7	12	51
10:00	13	14	9	16	52
11:00	18	20	16	19	73
12:00	23	17	23	21	84
13:00	14	21	17	19	71
14:00	32	34	19	36	121
15:00	38	28	35	25	126
16:00	41	21	25	31	118
17:00	27	25	34	26	112
18:00	23	38	53	49	163
19:00	27	21	16	18	82
20:00	12	9	9	9	39
21:00	9	10	5	5	29
22:00	4	3	5	2	14
23:00	1	3	3	2	9
				TOTAL	1365

AM PEAK HOUR	11:00-12:00
VOLUME	73
PM PEAK HOUR	18:15-19:15
VOLUME	167

DIRECTION:	SOUTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	5	3	0	0	8
01:00	1	2	0	0	3
02:00	0	0	0	4	4
03:00	4	3	0	3	10
04:00	9	10	10	20	49
05:00	14	9	23	12	58
06:00	19	16	16	17	68
07:00	33	35	29	18	115
08:00	30	17	24	34	105
09:00	29	12	23	21	85
10:00	22	21	23	32	98
11:00	22	24	15	21	82
12:00	15	39	20	31	105
13:00	21	18	27	24	90
14:00	29	35	33	38	135
15:00	31	33	27	37	128
16:00	42	33	26	31	132
17:00	36	29	33	22	120
18:00	25	23	14	19	81
19:00	23	20	12	27	82
20:00	26	18	11	11	66
21:00	12	9	8	11	40
22:00	22	18	12	5	57
23:00	5	3	7	6	21
				TOTAL	1742

AM PEAK HOUR	07:00-08:00
VOLUME	115
PM PEAK HOUR	15:15-16:15
VOLUME	139

TOTAL BI-DIRECTIONAL VOLUME	3107

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: LLG - PASADENA

PROJECT: ACTON

LOCATION: CROWN VALLEY ROAD N/O SIERRA HIGHWAY

DATE: WEDNESDAY, NOVEMBER 06, 2019

FILE NO: 2_ADT

DIRECTION:		NORTHBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	0	1	2	1	4
01:00	0	0	0	0	0
02:00	1	0	1	0	2
03:00	1	0	0	2	3
04:00	5	5	3	7	20
05:00	3	5	3	5	16
06:00	5	3	5	7	20
07:00	16	12	22	10	60
08:00	13	14	18	13	58
09:00	16	14	14	23	67
10:00	12	15	14	20	61
11:00	15	14	20	28	77
12:00	18	27	12	21	78
13:00	20	18	14	17	69
14:00	22	25	24	40	111
15:00	47	34	30	23	134
16:00	18	30	37	22	107
17:00	35	31	26	17	109
18:00	17	41	68	57	183
19:00	29	19	17	13	78
20:00	10	4	9	7	30
21:00	3	16	6	3	28
22:00	6	3	3	4	16
23:00	3	1	2	4	10
				TOTAL	1341

AM PEAK HOUR	11:00-12:00
VOLUME	77
PM PEAK HOUR	18:15-19:15
VOLUME	195

DIRECTION:		SOUTHBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	3	0	5	1	9
01:00	0	0	0	1	1
02:00	3	1	1	0	5
03:00	1	1	2	6	10
04:00	6	10	13	23	52
05:00	16	12	18	17	63
06:00	19	18	24	10	71
07:00	17	30	32	29	108
08:00	34	28	20	31	113
09:00	29	17	18	16	80
10:00	12	25	11	25	73
11:00	27	32	38	22	119
12:00	28	15	18	30	91
13:00	21	21	26	23	91
14:00	45	42	36	35	158
15:00	35	24	32	22	113
16:00	43	38	38	44	163
17:00	31	24	28	31	114
18:00	23	21	17	25	86
19:00	22	18	14	36	90
20:00	21	16	9	10	56
21:00	13	6	11	8	38
22:00	34	17	12	2	65
23:00	2	5	12	5	24
				TOTAL	1793

AM PEAK HOUR	07:15-08:15
VOLUME	125
PM PEAK HOUR	16:00-17:00
VOLUME	163

TOTAL BI-DIRECTIONAL VOLUME	3134

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT:	LLG - PASADENA
PROJECT:	ACTON
LOCATION:	SIERRA HIGHWAY E/O CROWN VALLEY ROAD
DATE:	TUESDAY. NOVEMBER 05, 2019
FILE NO:	3_ADT

DIRECTION:		WESTBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	3	0	1	1	5
01:00	0	0	0	0	0
02:00	2	3	1	7	13
03:00	1	3	9	20	33
04:00	48	111	166	66	391
05:00	33	114	111	84	342
06:00	84	76	68	65	293
07:00	84	95	87	47	313
08:00	55	65	56	55	231
09:00	40	46	32	37	155
10:00	33	34	41	31	139
11:00	34	32	31	43	140
12:00	31	28	40	38	137
13:00	28	32	34	46	140
14:00	65	45	31	40	181
15:00	35	31	31	30	127
16:00	29	24	31	29	113
17:00	28	28	31	21	108
18:00	26	24	25	26	101
19:00	20	19	18	16	73
20:00	11	13	8	8	40
21:00	5	7	6	5	23
22:00	4	5	3	5	17
23:00	2	0	2	1	5
				TOTAL	3120

AM PEAK HOUR	05:15-06:15
VOLUME	393
PM PEAK HOUR	13:45-14:45
VOLUME	187

DIRECTION:		EASTBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	5	5	3	5	18
01:00	3	6	1	1	11
02:00	0	1	2	1	4
03:00	0	1	1	0	2
04:00	7	3	7	6	23
05:00	7	8	3	3	21
06:00	8	3	14	12	37
07:00	17	20	35	19	91
08:00	25	28	34	24	111
09:00	21	26	26	24	97
10:00	27	23	24	29	103
11:00	26	32	21	34	113
12:00	27	47	54	64	192
13:00	77	61	69	43	250
14:00	45	66	61	82	254
15:00	74	94	83	80	331
16:00	96	98	157	142	493
17:00	148	187	187	169	691
18:00	137	128	117	82	464
19:00	70	53	55	42	220
20:00	31	18	21	23	93
21:00	16	15	12	14	57
22:00	16	12	9	9	46
23:00	8	10	7	4	29
				TOTAL	3751

AM PEAK HOUR	11:00-12:00
VOLUME	113
PM PEAK HOUR	17:00-18:00
VOLUME	691

TOTAL BI-DIRECTIONAL VOLUME	6871

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT:	LLG - PASADENA
PROJECT:	ACTON
LOCATION:	SIERRA HIGHWAY E/O CROWN VALLEY ROAD
DATE:	WEDNESDAY, NOVEMBER 06, 2019
FILE NO:	4_ADT

DIRECTION:		WESTBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	4	0	2	0	6
01:00	2	3	2	3	10
02:00	2	3	2	3	10
03:00	4	7	9	22	42
04:00	44	128	161	80	413
05:00	43	119	116	95	373
06:00	88	84	63	82	317
07:00	85	86	86	48	305
08:00	42	63	49	36	190
09:00	38	41	31	48	158
10:00	33	30	35	41	139
11:00	31	43	45	36	155
12:00	42	41	27	37	147
13:00	52	32	34	37	155
14:00	55	29	43	25	152
15:00	30	33	24	22	109
16:00	33	35	28	26	122
17:00	26	26	28	26	106
18:00	29	21	37	21	108
19:00	15	16	21	13	65
20:00	12	7	5	6	30
21:00	8	7	3	4	22
22:00	5	6	2	6	19
23:00	3	2	1	1	7
				TOTAL	3160

AM PEAK HOUR	05:15-06:15
VOLUME	418
PM PEAK HOUR	13:15-14:15
VOLUME	158

DIRECTION:		EASTBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	4	4	5	3	16
01:00	3	3	1	1	8
02:00	2	3	0	0	5
03:00	3	2	1	0	6
04:00	7	1	3	13	24
05:00	4	3	1	2	10
06:00	9	2	5	6	22
07:00	18	30	41	25	114
08:00	21	34	24	26	105
09:00	16	22	24	20	82
10:00	29	32	19	26	106
11:00	35	30	25	31	121
12:00	49	41	25	50	165
13:00	41	33	41	42	157
14:00	43	63	48	72	226
15:00	63	65	66	79	273
16:00	119	155	176	156	606
17:00	162	130	144	141	577
18:00	142	112	106	70	430
19:00	66	56	41	62	225
20:00	29	22	19	18	88
21:00	17	15	16	13	61
22:00	19	13	8	10	50
23:00	9	8	4	3	24
				TOTAL	3501

AM PEAK HOUR	11:00-12:00
VOLUME	121
PM PEAK HOUR	16:15-17:15
VOLUME	649

TOTAL BI-DIRECTIONAL VOLUME	6661

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: LLG - PASADENA

PROJECT: ACTON

LOCATION: CROWN VALLEY ROAD S/O SIERRA HIGHWAY

DATE: TUESDAY. NOVEMBER 05, 2019

FILE NO: 5_ADT

DIRECTION:	NORTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	6	13	10	6	35
01:00	6	4	2	4	16
02:00	10	7	6	7	30
03:00	16	9	9	18	52
04:00	34	53	54	81	222
05:00	93	78	91	94	356
06:00	88	95	104	97	384
07:00	93	107	129	91	420
08:00	66	103	112	133	414
09:00	87	88	96	88	359
10:00	71	81	64	107	323
11:00	60	62	75	88	285
12:00	104	158	181	128	571
13:00	147	141	119	112	519
14:00	134	176	92	119	521
15:00	138	116	124	92	470
16:00	100	93	79	105	377
17:00	105	110	103	84	402
18:00	78	90	109	84	361
19:00	63	80	58	80	281
20:00	59	43	33	21	156
21:00	33	27	23	28	111
22:00	35	19	21	19	94
23:00	20	9	12	11	52
				TOTAL	6811

AM PEAK HOUR	06:45-07:45
VOLUME	426
PM PEAK HOUR	12:15-13:15
VOLUME	614

DIRECTION:	SOUTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	8	10	11	7	36
01:00	8	6	3	4	21
02:00	4	7	15	14	40
03:00	20	21	15	23	79
04:00	45	46	70	65	226
05:00	30	49	48	56	183
06:00	40	68	69	61	238
07:00	102	111	164	105	482
08:00	90	100	119	112	421
09:00	128	118	97	90	433
10:00	82	82	94	94	352
11:00	98	84	102	102	386
12:00	82	108	80	96	366
13:00	74	70	86	112	342
14:00	125	134	84	86	429
15:00	107	99	111	79	396
16:00	80	107	85	87	359
17:00	99	86	107	94	386
18:00	71	50	72	51	244
19:00	67	43	59	43	212
20:00	45	48	29	43	165
21:00	35	19	19	23	96
22:00	32	22	26	14	94
23:00	10	11	5	13	39
				TOTAL	6025

AM PEAK HOUR	07:00-08:00
VOLUME	482
PM PEAK HOUR	13:30-14:30
VOLUME	457

TOTAL BI-DIRECTIONAL VOLUME	12836

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: LLG - PASADENA

PROJECT: ACTON

LOCATION: CROWN VALLEY ROAD S/O SIERRA HIGHWAY

DATE: WEDNESDAY, NOVEMBER 06, 2019

FILE NO: 6_ADT

DIRECTION:	NORTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	7	16	5	5	33
01:00	8	5	3	5	21
02:00	8	13	10	6	37
03:00	9	13	11	16	49
04:00	37	64	55	74	230
05:00	78	80	78	82	318
06:00	93	85	94	99	371
07:00	79	120	151	103	453
08:00	109	115	142	103	469
09:00	67	82	69	76	294
10:00	105	85	89	73	352
11:00	93	99	95	92	379
12:00	102	78	103	116	399
13:00	92	84	112	97	385
14:00	132	179	99	112	522
15:00	129	89	108	112	438
16:00	101	109	86	116	412
17:00	94	82	94	85	355
18:00	107	79	112	56	354
19:00	61	53	58	46	218
20:00	49	55	41	33	178
21:00	28	35	33	40	136
22:00	21	26	16	5	68
23:00	9	8	10	8	35
				TOTAL	6506

AM PEAK HOUR	07:15-08:15
VOLUME	483
PM PEAK HOUR	14:00-15:00
VOLUME	522

DIRECTION:	SOUTHBOUND				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	12	8	12	15	47
01:00	8	11	6	6	31
02:00	11	2	14	8	35
03:00	21	22	30	30	103
04:00	49	62	90	55	256
05:00	69	32	49	37	187
06:00	59	77	78	80	294
07:00	88	111	152	125	476
08:00	93	123	105	136	457
09:00	101	77	76	92	346
10:00	89	83	65	83	320
11:00	96	93	116	89	394
12:00	104	102	85	83	374
13:00	99	85	125	109	418
14:00	119	100	101	98	418
15:00	107	104	89	104	404
16:00	116	104	102	76	398
17:00	87	76	80	91	334
18:00	79	66	79	76	300
19:00	48	54	49	45	196
20:00	49	27	16	38	130
21:00	29	19	36	25	109
22:00	29	29	30	13	101
23:00	15	11	8	10	44
				TOTAL	6172

AM PEAK HOUR	07:30-08:30
VOLUME	493
PM PEAK HOUR	13:30-14:30
VOLUME	453

TOTAL BI-DIRECTIONAL VOLUME	12678

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: LLG - PASADENA

PROJECT: ACTON

LOCATION: SIERRA HIGHWAY W/O CROWN VALLEY ROAD

DATE: TUESDAY. NOVEMBER 05, 2019

FILE NO: 7_ADT

DIRECTION:		WESTBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	4	2	0	0	6
01:00	2	1	3	9	15
02:00	12	18	8	3	41
03:00	11	7	5	17	40
04:00	70	159	211	248	688
05:00	271	230	168	161	830
06:00	171	167	104	113	555
07:00	109	142	83	77	411
08:00	51	83	82	93	309
09:00	54	71	42	53	220
10:00	74	46	49	41	210
11:00	51	52	71	47	221
12:00	47	56	59	44	206
13:00	44	47	54	51	196
14:00	77	71	55	64	267
15:00	48	48	70	55	221
16:00	69	63	44	32	208
17:00	30	37	35	38	140
18:00	34	28	41	28	131
19:00	23	24	37	22	106
20:00	18	13	18	11	60
21:00	12	10	10	14	46
22:00	9	9	5	4	27
23:00	7	3	5	2	17
				TOTAL	5171

AM PEAK HOUR	04:30-05:30
VOLUME	960
PM PEAK HOUR	14:00-15:00
VOLUME	267

DIRECTION:		EASTBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	6	2	3	2	13
01:00	2	4	3	1	10
02:00	0	3	1	8	12
03:00	9	8	15	3	35
04:00	10	18	12	12	52
05:00	24	5	12	3	44
06:00	23	12	33	19	87
07:00	21	57	74	37	189
08:00	42	43	33	47	165
09:00	30	31	18	31	110
10:00	37	41	33	28	139
11:00	29	39	46	49	163
12:00	59	40	53	47	199
13:00	27	33	52	43	155
14:00	49	55	61	83	248
15:00	79	95	85	114	373
16:00	93	104	120	145	462
17:00	154	172	164	144	634
18:00	134	130	89	86	439
19:00	54	50	51	38	193
20:00	39	25	26	18	108
21:00	13	10	15	14	52
22:00	11	8	5	12	36
23:00	7	4	6	7	24
				TOTAL	3942

AM PEAK HOUR	07:15-08:15
VOLUME	210
PM PEAK HOUR	16:45-17:45
VOLUME	635

TOTAL BI-DIRECTIONAL VOLUME	9113

THE TRAFFIC SOLUTION - ADT WORKSHEET

CLIENT: LLG - PASADENA

PROJECT: ACTON

LOCATION: SIERRA HIGHWAY W/O CROWN VALLEY ROAD

DATE: WEDNESDAY, NOVEMBER 06, 2019

FILE NO: 8_ADT

DIRECTION:		WESTBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	2	2	4	7	15
01:00	1	11	3	1	16
02:00	10	12	3	6	31
03:00	12	12	7	24	55
04:00	61	160	208	257	686
05:00	263	259	187	153	862
06:00	167	112	121	122	522
07:00	122	135	90	88	435
08:00	66	87	77	81	311
09:00	56	53	56	50	215
10:00	72	67	47	56	242
11:00	26	34	52	64	176
12:00	52	41	45	50	188
13:00	58	36	49	62	205
14:00	84	58	41	75	258
15:00	57	59	55	42	213
16:00	46	42	54	32	174
17:00	42	38	40	35	155
18:00	31	36	31	40	138
19:00	19	26	22	21	88
20:00	14	14	12	25	65
21:00	18	14	8	16	56
22:00	12	10	12	4	38
23:00	10	7	3	4	24
				TOTAL	5168

AM PEAK HOUR	04:30-05:30
VOLUME	987
PM PEAK HOUR	14:00-15:00
VOLUME	258

DIRECTION:		EASTBOUND			
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
00:00	6	5	1	6	18
01:00	1	6	2	3	12
02:00	3	1	4	3	11
03:00	3	4	2	10	19
04:00	3	8	14	7	32
05:00	9	7	14	3	33
06:00	14	30	16	21	81
07:00	25	48	68	29	170
08:00	49	42	32	24	147
09:00	24	45	20	22	111
10:00	38	62	21	38	159
11:00	34	28	33	35	130
12:00	45	39	41	36	161
13:00	41	43	46	44	174
14:00	45	66	65	106	282
15:00	69	73	83	88	313
16:00	106	123	111	161	501
17:00	136	170	174	171	651
18:00	112	133	119	95	459
19:00	81	68	57	37	243
20:00	32	36	16	18	102
21:00	14	22	17	26	79
22:00	10	7	7	13	37
23:00	8	9	5	4	26
				TOTAL	3951

AM PEAK HOUR	07:15-08:15
VOLUME	194
PM PEAK HOUR	17:00-18:00
VOLUME	651

TOTAL BI-DIRECTIONAL VOLUME	9119