Appendix H

Traffic Impact Analysis Report and
Trip Generation Calculations

TRAFFIC IMPACT ANALYSIS REPORT

Proposed 105-Unit Residential Development
(35 Townhome Units, 66 Apartment Units, 4 Live/Work Units)
23755 Newhall Avenue
Santa Clarita, California

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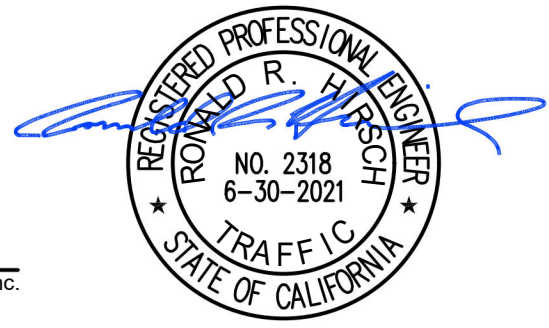

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APRIL 2021

EXECUTIVE SUMMARY

The project under consideration is the construction of a new multi-family residential development located at 23755 Newhall Avenue, along the southern side of the street between Carl Court and Valle del Oro, in the City of Santa Clarita. At the time this study was initiated, the project site was occupied by several commercial uses, including a used car sales lot, an oil change business, and a roofing material storage facility, all of which will be removed in order to construct the proposed residential project, which itself will contain a total of approximately 105 residential units, including about 35 townhomes, 66 apartments, and four live/work units (each live/work unit will provide approximately 200 square feet of "commercial" floor area, or a project total of approximately 800 square feet).

The proposed project will provide a total of approximately 264 on-site vehicular parking spaces located in a combination of surface parking lots and within the residential buildings themselves. Although detailed evaluations of the adequacy of the project's proposed parking supply are not included in this report, the amount of project-related parking is subject to the City of Santa Clarita Planning Division requirements, and as such, no significant off-site parking impacts or "spillover" into nearby residential or commercial parking areas due to inadequate on-site parking is expected.

Vehicular access to the project site will be provided by two driveways along Newhall Avenue near the center and eastern end of the site's frontage. Due to the existing raised median island on Newhall Avenue adjacent to the entire project frontage, both project driveways will be restricted to right-turn entry/right-turn exit operations. Adequate and unobstructed site distances are provided in both directions along Newhall Avenue from the proposed driveway locations, and as a result, no significant project site access-related issues or impacts to Newhall Avenue are anticipated.

The project applicant retained Hirsch/Green Transportation Consulting, Inc. to evaluate the potential transportation-related effects of the proposed development based on the requirements and methodologies identified in the current City of Santa Clarita transportation analysis guidelines. These guidelines include analyses to assess the project's consistency with applicable plans and policies related to the City's recently adopted vehicle miles traveled ("VMT") evaluation criteria for California Environmental Quality Act ("CEQA") purposes, along with "non-CEQA" evaluations of the project's potential effects on local transportation facilities. The scope of this study was reviewed and approved by the City's Traffic and Transportation Planning Division ("SCTTPD") to ensure that appropriate study methodologies and assumptions were utilized.

A review of the proposed project's location identified that it is within a designated "Low VMT Area" of the City of Santa Clarita. As a result, pursuant to the CEQA/VMT "screening" criteria described in the City's *Transportation Analysis Updates in Santa Clarita* report, the City has determined that the project will not result in any significant VMT-related impacts, and therefore, is not required to prepare a detailed VMT impact evaluation. However, that conclusion does not exempt the project from other traffic-related analysis requirements, including evaluations of its potential impacts on the various streets and intersections serving the project site and surrounding vicinity. Therefore, based on the City's review and recommendations, this study evaluates the existing (year 2021) and forecast future (year 2023) traffic conditions at five signalized intersections in the immediate project vicinity during the typical weekday AM and PM peak commute traffic hours. This study also evaluates potential project-related impacts to regionally significant transportation facilities serving the study area, including freeway mainline segments and key arterial intersections in the general vicinity of the proposed project, as required pursuant to the current Los Angeles County Congestion Management Program ("CMP"). Further, potential project-related impacts to the existing public transportation services operating in the general study area were also evaluated.

Once it is completed and fully occupied, which is expected to occur by the end of the year 2023, the proposed project is anticipated to result in approximately 644 net trips per day, including about 42 net trips during the AM peak hour and about 52 net trips during the PM peak hour. Based on this level of trip generation, the analyses contained in this report indicate that the proposed project will not significantly impact any of the five study intersections examined in this study under either the existing (year 2021) or future (year 2023) traffic evaluation scenarios. Additionally, the project will not significantly impact any of the mainline freeway segments or arterial roadways or intersections in the project vicinity, nor will it result in significant impacts to any of the public transit facilities serving the project site and surrounding study area. Further, although a detailed assessment of the project's proposed on-site parking supply was not required for inclusion in this study, the project will be mandated to provide sufficient vehicular parking to satisfy the applicable City parking requirements, and as such, no significant project-related parking impacts or "spillover" into nearby residential or commercial areas due to inadequate on-site parking is expected. Finally, the project's two proposed driveway locations and anticipated operations are acceptable, with adequate sight distance provided at each location. However, due to the existing raised median island on Newhall Avenue adjacent to the project site, both site access driveways will exhibit "right-turn only" entry and exit restrictions.

Therefore, based on the analyses and evaluations summarized in this report, the development of the proposed project is not expected to result in significant impacts to VMT, area traffic operations, site access, parking, or public transit services or facilities in the project vicinity, and as a result, no project-specific mitigation measures related to any of these issues are warranted.

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INTRODUCTION

This document summarizes the results of a detailed traffic impact assessment conducted for a proposed multi-family residential (apartment) project at 23755 Newhall Avenue, located along the southwestern side of the street between Carl Court and Valle del Oro, in the City of Santa Clarita. The project site is currently occupied by several commercial uses, including a used car sales lot, a single-bay oil change business, and a roofing materials storage facility, all of which will be removed to construct a new residential development containing a total of approximately 105 units, including about 35 townhomes, 66 apartments and four live/work units (each of which providing a total of about 200 square feet of "commercial" area, or a project total of about 800 square feet). The project will also provide a total of approximately 264 on-site vehicular parking spaces, with vehicular access to the project site provided via two "right-turn entry/right-turn exit" driveways located along Newhall Avenue near the center and eastern boundary of the project's frontage. The location of the proposed project within the surrounding vicinity is shown in Figure 1.

Pursuant to the State of California's adoption of Senate Bill 743 ("SB 743"), and as required under the current California Environmental Quality Act ("CEQA"), the primary metric for evaluating the potential environmental impacts of proposed development and transportation projects has shifted from the previous intersection and street level of service ("LOS") methodology to an evaluation of vehicle miles traveled ("VMT") in order to reduce greenhouse gas emissions ("GHG"), create or expand sustainable multi-modal transportation networks that both encourage and support the use of alternate travel modes (such as public transit, bicycling, walking, etc.), reduce the dependence on single-occupant vehicles, and promote mixed-use developments.

The project applicant retained Hirsch/Green Transportation Consulting, Inc. to study the potential transportation impacts of the proposed project based on the requirements and methodologies identified in the *Transportation Analysis Updates in Santa Clarita* report prepared by Fehr & Peers. These guidelines include analyses used to determine a proposed project's consistency with all plans and policies related to the City of Santa Clarita's recently adopted VMT evaluation criteria. The analysis methodologies and other assumptions used in this study were reviewed and approved by the City of Santa Clarita's Traffic and Transportation Planning Division ("SCTTPD").

The first step in the analysis of the proposed project's potential VMT-related impacts involved the determination of whether such VMT analyses were actually required. The methodologies related to the VMT evaluations are described in the *Transportation Analysis Updates in Santa Clarita* report

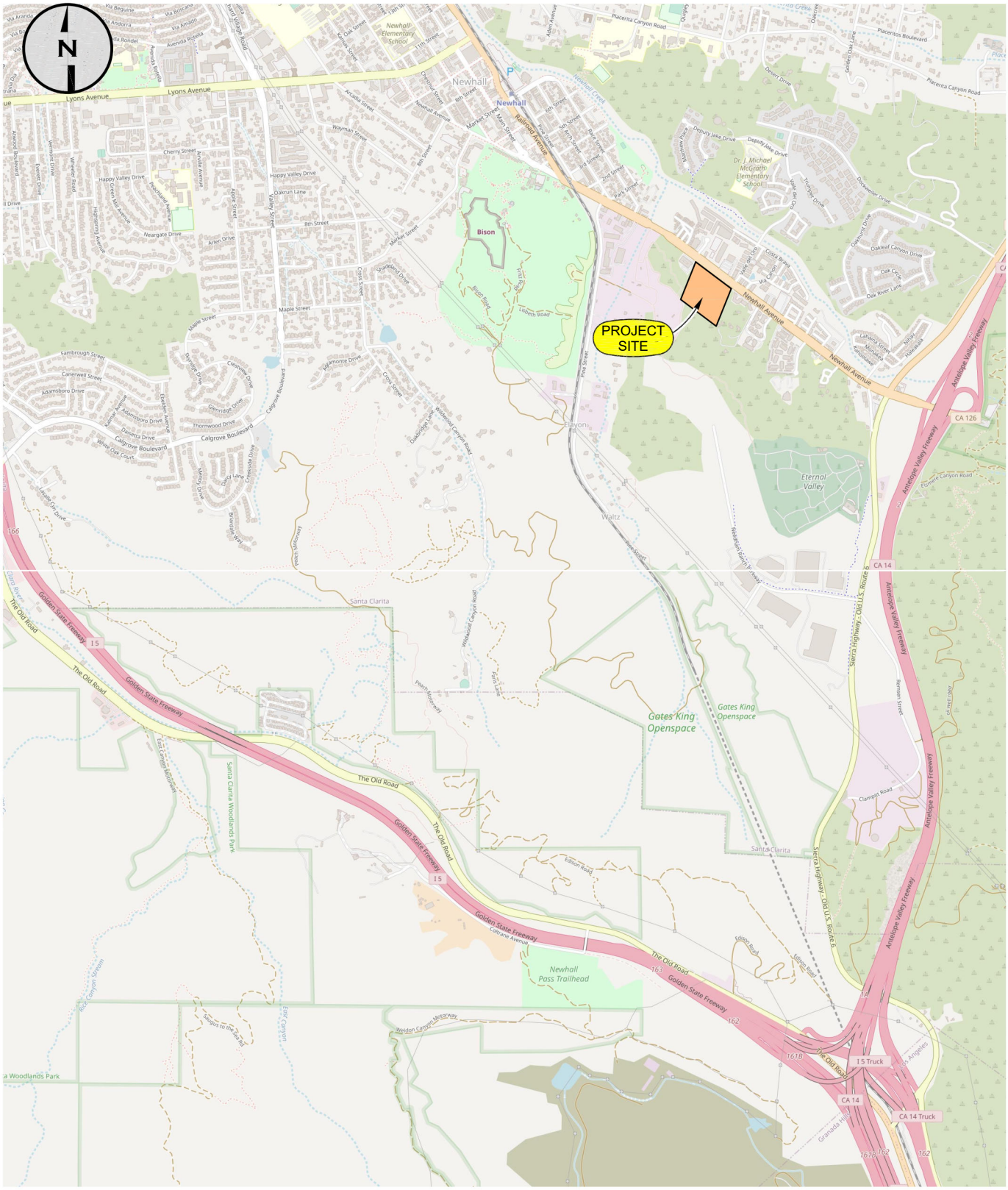

FIGURE 1

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PROJECT SITE VICINITY MAP

referenced earlier, and include "screening" procedures based upon several project-related criteria, such as its anticipated daily vehicular trip generation levels, size and type of land uses proposed, project location, proximity to public transit services or facilities, and other project characteristics. The City's VMT analysis "screening" criteria and associated thresholds for identifying whether the proposed project is required to prepare a detailed VMT impact analysis are listed below.

- Project Size - Projects that generate less than 110 daily trips
- Local Serving Retail - Local serving retail uses that consist of less than 50,000 square feet
- Low VMT Area - Residential and office projects located within a "low VMT" generating area identified as an area that is already 15% (or more) below the baseline VMT when compared to the citywide average
- Transit Proximity - A project located within one-half mile of the Metrolink station or a bus stop with service frequency of 15 minutes or less during the commute periods (additional project characteristics are also required to be evaluated for this "screening" criteria)
- Affordable Housing – A residential project that provides affordable housing units; if part of a larger development, only those units that meet the definition of affordable housing satisfy the screening criteria
- Transportation Facilities – Transportation projects that promote non-auto travel, improve safety, or improve traffic operations at current bottlenecks, such as public transportation, bicycle, and pedestrian facilities, intersection traffic control (such as traffic signals or roundabouts), or widening at intersections to provide new turn lanes

Should the proposed project meet one or more of these criteria, it is considered to be consistent with the City's VMT plans and policies, and as such, is "screened out" from further VMT analyses. As shown in Figure 2, a review of the project's location (23755 Newhall Avenue) indicates that it is located in a designated "Low VMT Area", and this determination was reviewed and confirmed by the City's Traffic and Transportation Planning Division staff. As a result, regardless of whether the proposed project meets any of the other "screening" criteria listed above, due to its location within a designated "Low VMT Area", no further project-related VMT evaluations are warranted.

However, although the project is "screened out" of providing a VMT analysis, the City still required that further analyses be prepared to determine if any physical or operational improvements to the project area roadway system would be necessary to accommodate the potential additional traffic

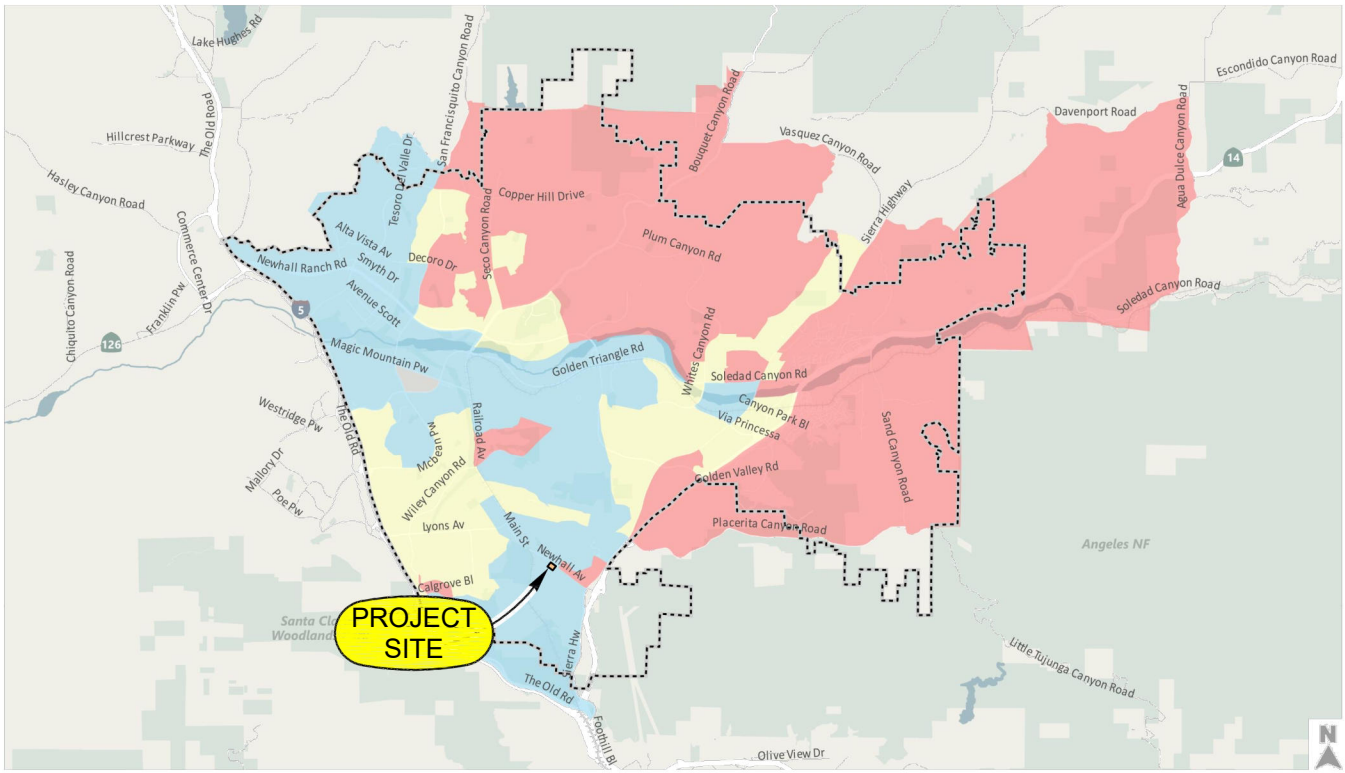

Figure 5

Daily Home-based VMT per Capita
Compared to City Average (2020)

FIGURE 2

LOW VMT AREA MAP

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that could result from the development of the proposed project. Therefore, an additional analysis was conducted to evaluate the existing and forecast future operations at several key intersections located near the project site or along the travel routes most likely to be used by the project's traffic. Unlike the VMT-related evaluations discussed earlier, these "intersection" and "street" analyses utilize the City's level of service ("LOS") delay-based analysis procedures. The guidelines for the assessment of project-related impacts to the local area (project vicinity) transportation are also described in the *Transportation Analysis Updates in Santa Clarita* document referenced earlier.

Pursuant to the recommendation of the City's Traffic and Transportation Planning Division staff, the analyses summarized in this study evaluate the weekday AM and PM peak hour conditions for both the existing (year 2021) and forecast future (year 2023) at five (5) signalized intersections located adjacent or proximate to the project site. The selected intersections, listed below and shown in relation to the project site in Figure 3, represent those locations considered to be the most likely to be affected by the potential incremental traffic generated by the proposed project.

1. Newhall Avenue and Railroad Avenue
2. Newhall Avenue and Pine Street/Arch Street
3. Newhall Avenue and Carl Court
4. Newhall Avenue and Valle del Oro
5. Newhall Avenue and Sierra Highway

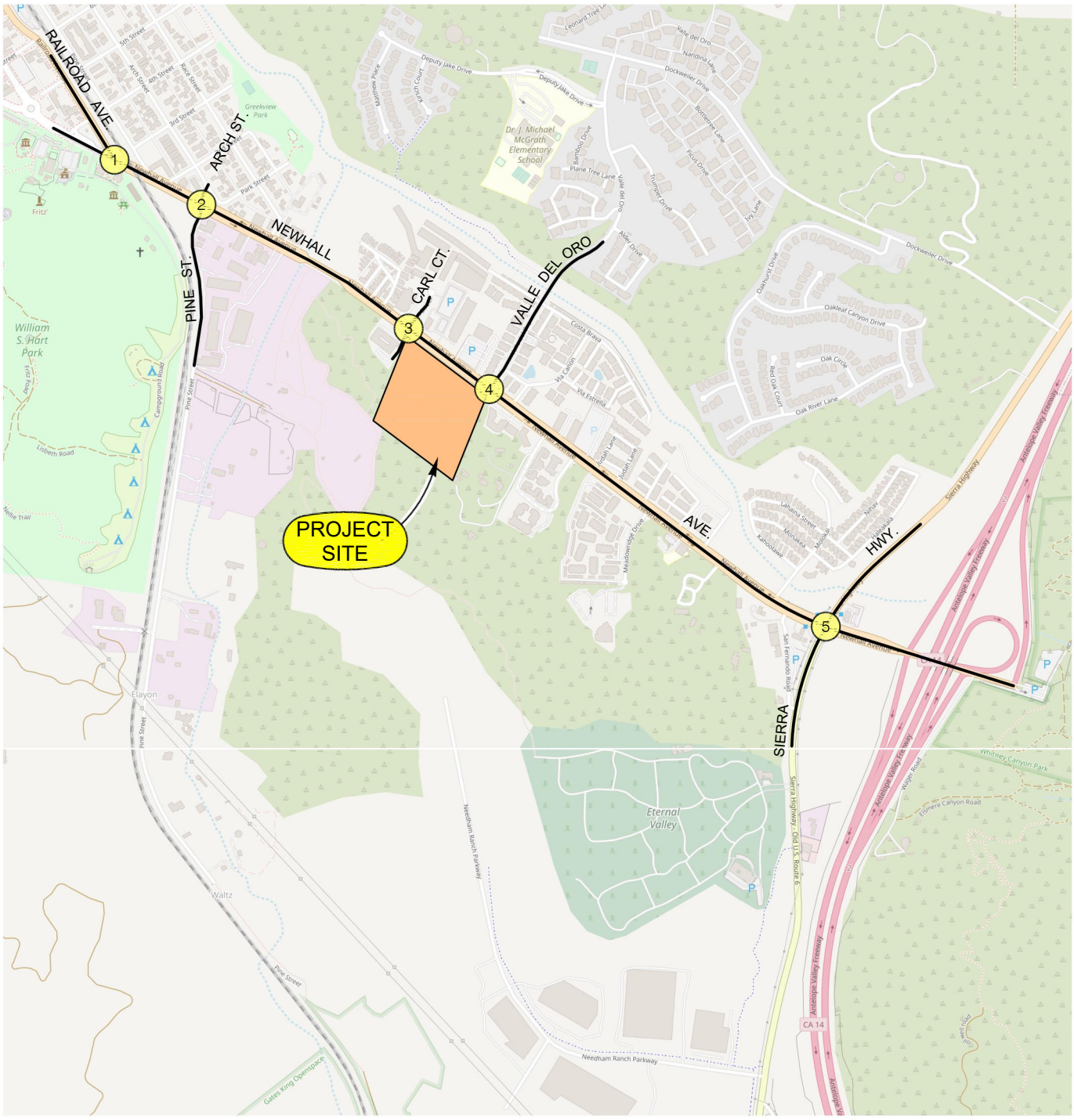

FIGURE 3

STUDY INTERSECTION LOCATIONS

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PROJECT DESCRIPTION

The project under consideration is the proposed development of a new residential project at 23755 Newhall Avenue, on the southern side of the street between Carl Court and Valle del Oro, in the City of Santa Clarita. The project site is currently occupied with various commercial uses, including a used car sales lot, a single-bay oil change service, and a roofing supply storage facility, all of which will be removed to construct the proposed project, which will contain a total of up to 105 residential units, including 35 townhomes (assumed for this study as "low-rise" apartments), 66 apartments ("mid-rise" apartments), and four live/work units ("mid-rise" apartments) providing a total of about 800 square feet of "commercial" floor area. The project will also provide a total of about 264 on-site parking spaces accessed via two "right-turn entry/right-turn exit" driveways along Newhall Avenue, including one driveway located near the center of the project site and the other driveway located near its eastern boundary. The project site layout is shown in Figure 4.

Project Traffic Generation

The typical traffic-generating characteristics associated with a variety of common land uses, including residential units ("apartments" and "townhomes) and "small office" uses (such as the "commercial" areas of live/work units) similar to those proposed for the subject project, have been extensively surveyed and documented in a number of studies conducted under the auspices of the Institute of Transportation Engineers ("ITE"), with the most current information provided in the 10th Edition of the ITE's *Trip Generation* publication.[1] The trip generation data contained in the *Trip Generation* manual are nationally recognized, and are utilized as the basis for trip estimation purposes for most traffic studies conducted within the Southern California region, including for the City of Santa Clarita. The ITE trip generation rates used in this study to estimate the amount of traffic produced by the proposed project are identified and summarized in Table 1.

Note that the trip generation rates shown in Table 1 are typically derived from actual counts of vehicles accessing the driveways of the subject land uses, and as a result, do not generally account for a variety of factors that can affect the actual amount of traffic generated by those uses. For residential developments such as the proposed project, the primary trip-adjustment factor relates to the effects of the use of public transportation on the estimates of the "net" traffic added to the roadways serving the project area. However, for the purposes of this study, in order to present a conservative evaluation of the potential traffic-related impacts of the proposed project,

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

23755 NEWHALL AVENUE APTS (SANTA CLARITA) \ SITE LAYOUT

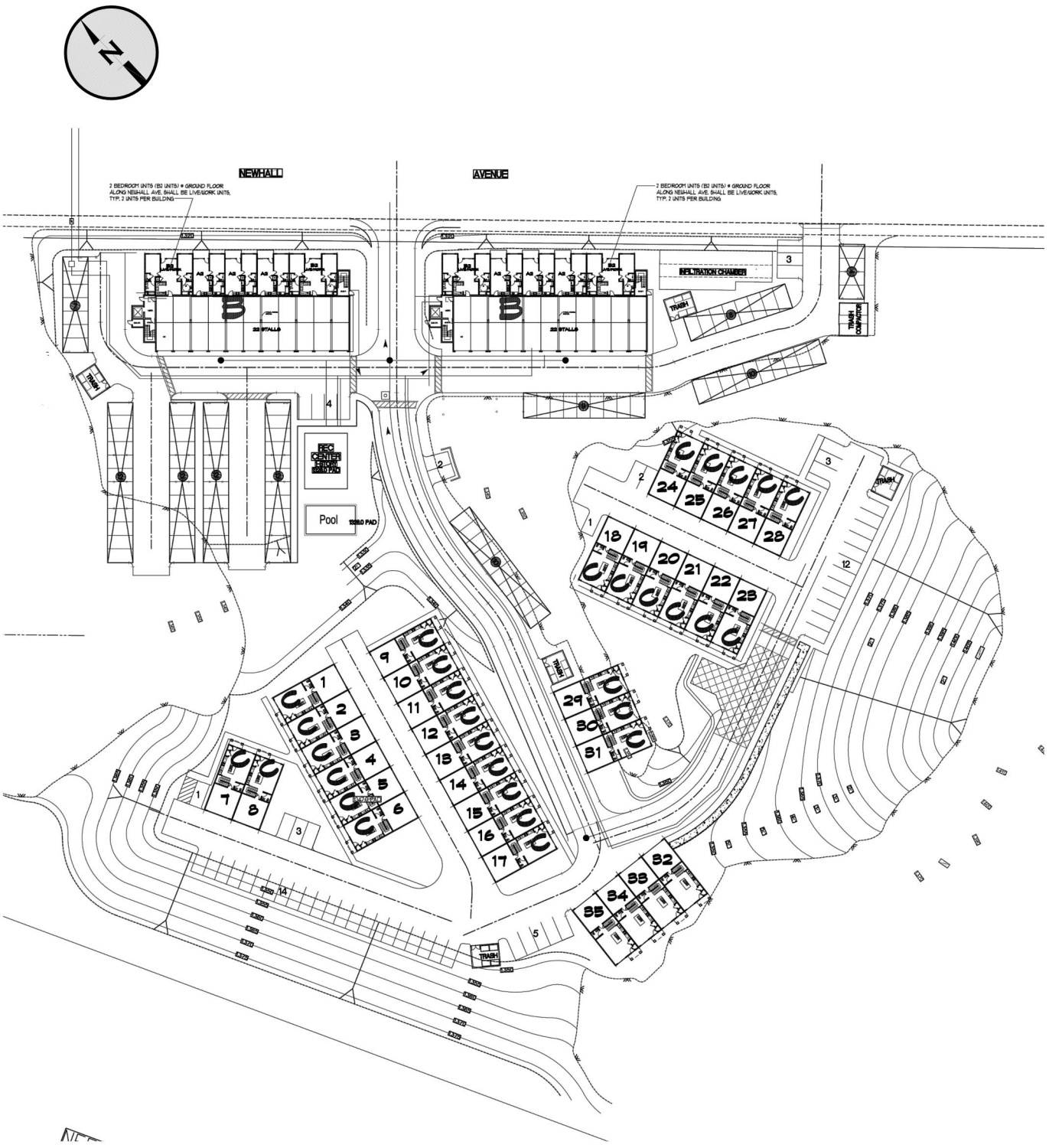

FIGURE 4

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PROJECT SITE LAYOUT

Table 1
Proposed Project Site Uses Trip Generation Rates

Multifamily Housing (Low-Rise) - per dwelling unit, 1 or 2 story buildings (ITE Land Use 220)

Daily Trips: T = 7.32 (U)
AM Peak Hour: T = 0.46 (U); I/B = 23%, O/B = 77%
PM Peak Hour: T = 0.56 (U); I/B = 63%, O/B = 37%

Multifamily Housing (Mid-Rise) - per dwelling unit, 3 or more story buildings (ITE Land Use 221)

Daily Trips: T = 5.44 (U)
AM Peak Hour: T = 0.36 (U); I/B = 26%, O/B = 74%
PM Peak Hour: T = 0.44 (U); I/B = 61%, O/B = 39%

Small Office Building - per 1,000 Gross Square Feet (ITE Land Use 712)

Daily Trips: T = 16.19 (A)
AM Peak Hour: T = 1.92 (A); I/B = 83%, O/B = 18%
PM Peak Hour: T = 2.45 (A); I/B = 32%, O/B = 68%

Where: T = Trip Ends; U = Number of Residential Units; A = Gross Floor Area in 1,000 sq. ft.; I/B = Inbound Trip Percentage; O/B = Outbound Trip Percentage

* Notes:

All trip generation rates and other data per 10th Ed. ITE *Trip Generation*, unless noted.

no adjustments to account for the use of public transportation by project residents were made to the "baseline" project trip generations estimates identified using the ITE data shown in Table 1.

However, it is also of note that, as described earlier, the project will include four "live/work" units, with each providing a small office or retail "business" suite in addition to their residential living areas. As a result, the amount of traffic generated by the "residential" portions of the live/work units is generally reduced compared to a typical "residential only" unit, as some or all of the residents of the live/work units would not need to commute to or from an off-site workplace. Therefore, for the purposes of this study, it was assumed that a 25 percent overall reduction in "daily" trips, and a 50 percent overall reduction in both the AM and PM peak hour trips, would be applicable to the "residential" areas of the proposed "live/work" units, although no trip adjustments were considered to be applicable to the "commercial" component of these units.

Therefore, utilizing the trip generation rates identified in Table 1, along with the trip adjustments associated with the residential component of the live/work units, the trip generation estimates for the proposed project were calculated, and the results are shown in Table 2. It is also of note that the demolition of the existing on-site commercial uses necessary to construct the proposed project

Table 2
Project Trip Generation Estimates

Size/Use	Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Proposed Project							
Residential Components							
35 -unit Townhomes	256	4	12	16	13	7	20
66 -unit Apartments	359	6	18	24	18	11	29
Subtotal Proposed Proposed Residential Trips	*359*	*6*	*18*	*24*	*18*	*11*	*29*
Live/Work Component							
4 -unit Apartments	22	0	1	1	1	1	2
Live/Work Reduction (25% Daily; 50% Peak Hour)	(6)	0	(1)	(1)	(1)	0	(1)
Subtotal Live/Work Unit Residential Trips	*16*	*0*	*0*	*0*	*0*	*1*	*1*
800 sq. ft. Office (Total Live/Work Commercial Area)	13	2	0	2	1	1	2
Subtotal Proposed Live/Work Unit Trips	*29*	*2*	*0*	*2*	*1*	*2*	*3*
Total Proposed Project Trips	***644***	***12***	***30***	***42***	***32***	***20***	***52***
Existing Site Use (Removed)							
Various Commercial Uses	- - - - - - - - - - - - nominal - - - - - - - - - - - -						
Total Net New Site Trips	**644**	**12**	**30**	**42**	**32**	**20**	**52**

will also result in the removal of their associated trips from the "existing" area traffic volumes, thereby partially offsetting some of the "new" traffic generated by the proposed project itself. However, based on both recent observations and anecdotal historical evidence, it is acknowledged that the collective trip generation levels related to the existing uses at the project site are nominal, and as a result, no trip "credits" for the existing uses were assumed for this study.

Therefore, as shown in Table 2, once it is built and fully occupied, the proposed project is expected to result in approximately 644 trips per day, including about 42 trips (12 inbound, 30 outbound) during the AM peak hour, and about 52 trips (32 inbound, 20 outbound) during the PM peak hour. Since no trip "credits" related to the demolition of the various existing on-site commercial uses (and the associated removal of their current traffic from the area roadway system) were assumed in this study, the trip values identified in Table 2 represent the total "net" project-related traffic that could be expected to be added to the streets and intersections in the project vicinity, and as such, were used to evaluate the proposed project's potential traffic impacts at the study intersections.

Project Geographic Trip Distribution

Next, the general geographic distributions for the proposed project's trips were identified, based primarily on a review of the existing traffic volumes and travel patterns in the general vicinity of the project site. However, local and regional demographic information for the study area was also researched to provide data on the general locations of likely employment centers, shopping and/or entertainment venues, and other services that could be anticipated to be used by project residents. This data was then used to develop the overall geographic distribution of project trips through the local and surrounding region, as shown in Table 3. Note that, for the purposes of this analysis, the trip distribution percentages shown in Table 3 are assumed to reflect the travel patterns of the proposed project during both the AM and PM peak hours evaluated in this study.

Table 3
General Geographic Trip Distribution Percentates
(Proposed Project)

Direction	Total
North	10%
South	65%
East	0%
West	25%
Total	***100%***

Project Traffic Assignment

Based on the general geographic distributions shown in Table 3, the approximate percentages of the traffic associated with the proposed project were assigned to the specific streets and highways serving the project site and the surrounding vicinity. This process considered a number of factors that could influence the travel routes, including turn restrictions at intersections located along the assumed travel routes, one-way or limited access streets, "connectivity" between surface streets and regional transportation facilities (freeways), and overall "completeness" of the street system through and surrounding the study area (to account for any discontinuities in the travel routes).

The resulting trip assignment percentages along the key local and regional transportation facilities in the study area are identified in Figure 5, which as noted previously, are assumed to reflect the travel patterns of the proposed project's traffic during both the AM and PM peak hours.

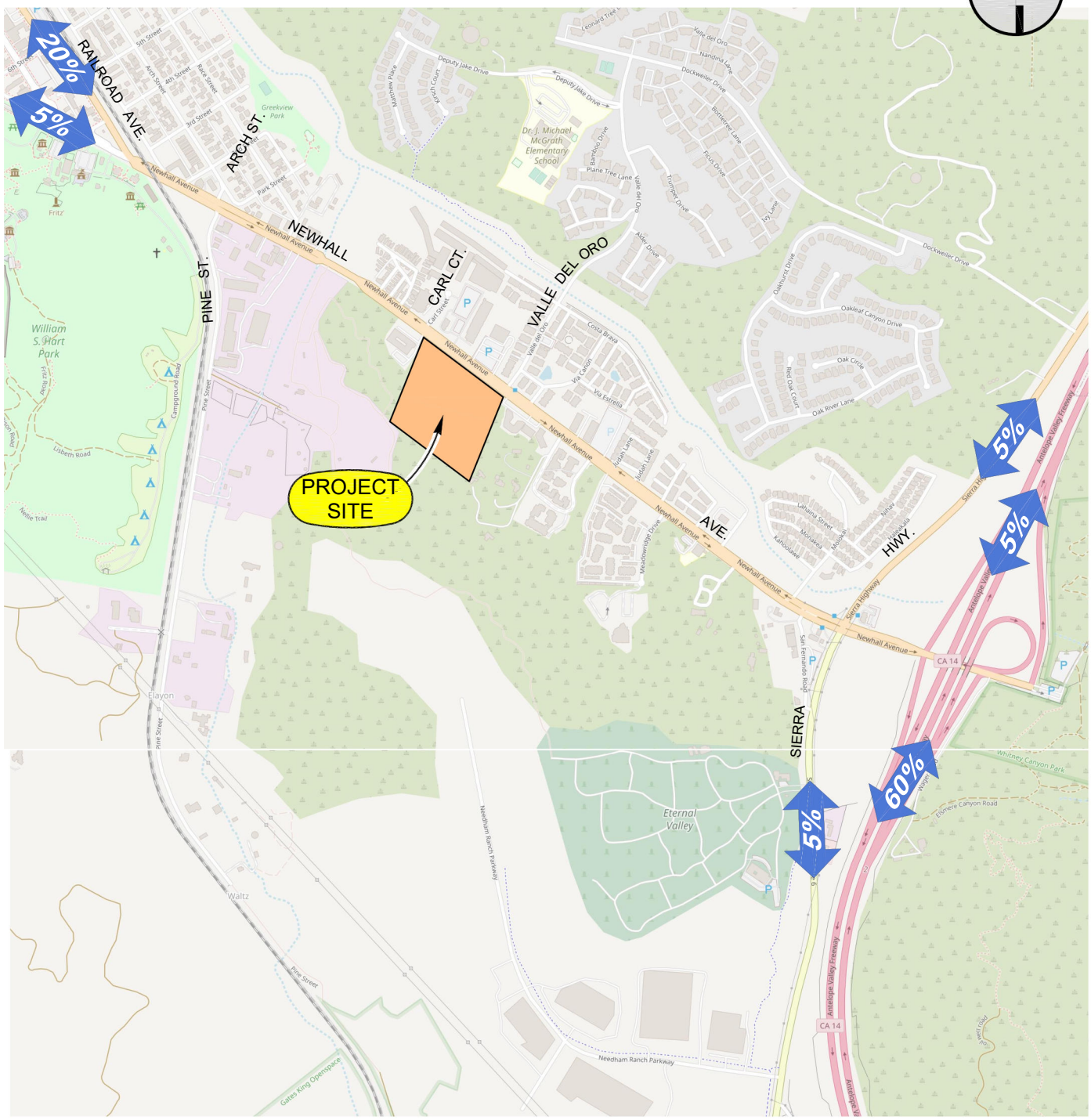

FIGURE 5

PROJECT GEOGRAPHIC TRAFFIC DISTRIBUTION PERCENTAGES

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The general geographic trip assignments shown in Figure 5 were then further refined to identify the specific movement (left-turn, through, right-turn) of the project-related traffic through each of the study intersections as it travels to and from the project site. This level of detail is necessary in order to accurately evaluate the potential effects of the proposed project's net traffic on each of the study intersections. In addition to the area-wide factors noted earlier that could influence the general geographic travel patterns of the project's traffic, this step also considered the effects of more "localized" factors such as the location and operations of the proposed project's driveways, which as briefly described earlier, will be restricted to right-turn entry and right-turn exit only.

Based on these factors, the project-related "turning-movement" traffic assignment percentages at each of the five intersections evaluated in this study were identified, and are shown in Figure 6. As with the project-related general geographic trip distributions described previously and shown in Figure 5, the "intersection-level" trip assignment percentages shown in Figure 6 are assumed to reflect the typical travel patterns associated with the proposed project's traffic throughout the day, including during both the AM and PM peak traffic periods analyzed in this study.

The next step in the trip assignment process was to identify the number of project trips anticipated to travel through each of the study intersections. The resulting "intersection level" trip assignments for the proposed project are shown in Figure 7(a) for the AM peak hour, and in Figure 7(b) for the PM peak hour. The values shown in these figures provide the level of detail necessary to conduct the traffic analysis and identify the incremental project-related impacts at each study intersection.

Project Parking and Access

Project Parking Requirements

The project proposes to provide a total of approximately 264 on-site vehicular parking spaces. The project's parking requirements, and adequacy of the proposed amount of parking provided, will be determined by the City. As such, no significant project-related parking impacts or "spillover" into nearby residential or commercial areas due to inadequate on-site parking is expected.

Project Vehicular Access and Operations

Access to the proposed project will be provided via two driveways on Newhall Avenue, including a "primary" access driveway located near the center of the project's frontage along that roadway, and a "secondary" driveway near the site's eastern boundary. As briefly noted earlier, due to the existing raised median island on Newhall Avenue along the entire project frontage, both driveways

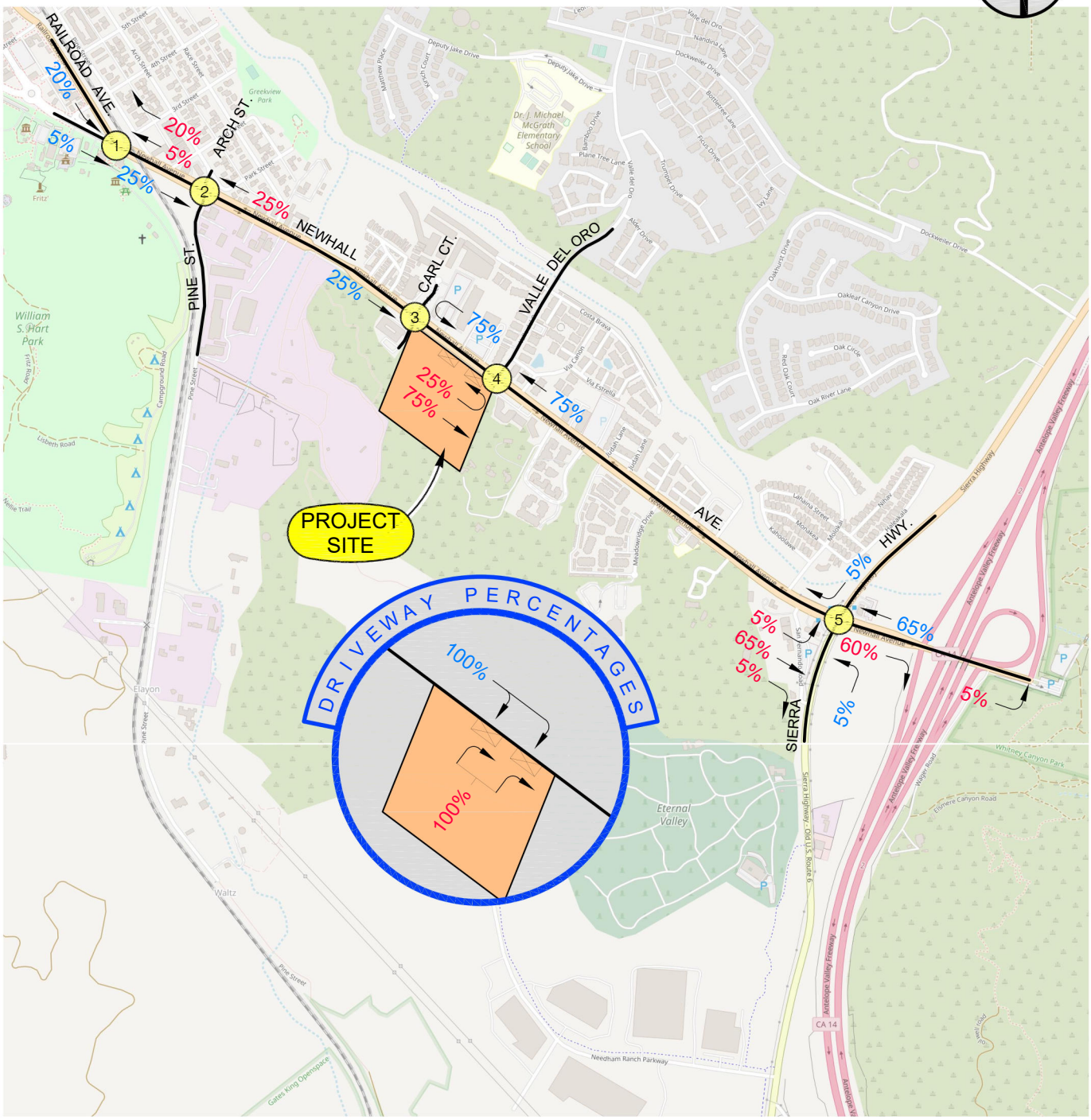

FIGURE 6

PROJECT TRIP ASSIGNMENT PERCENTAGES

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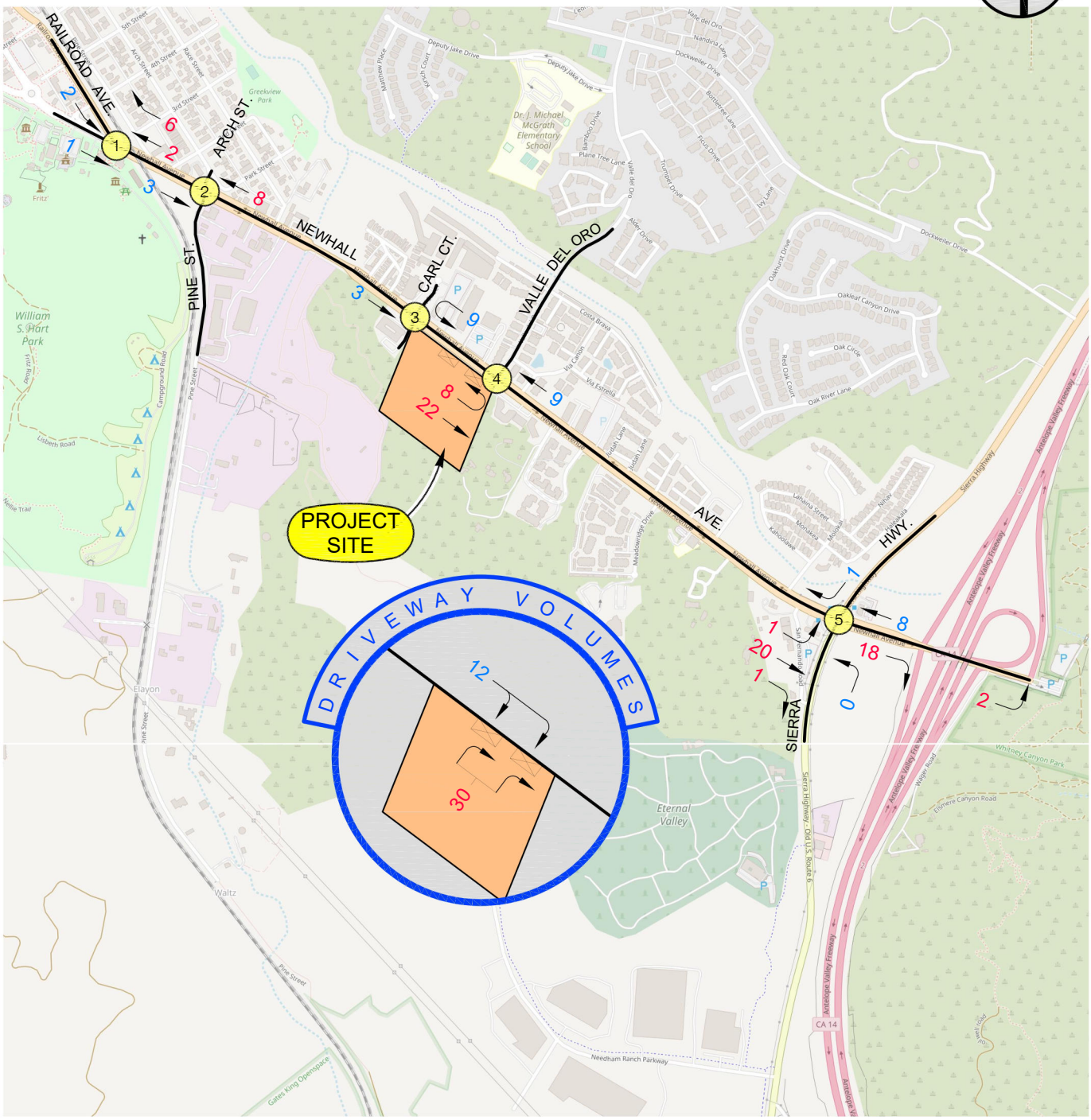

LEGEND
XX INBOUND
XX OUTBOUND

FIGURE 7(a)

PROJECT TRAFFIC VOLUMES
AM PEAK HOUR

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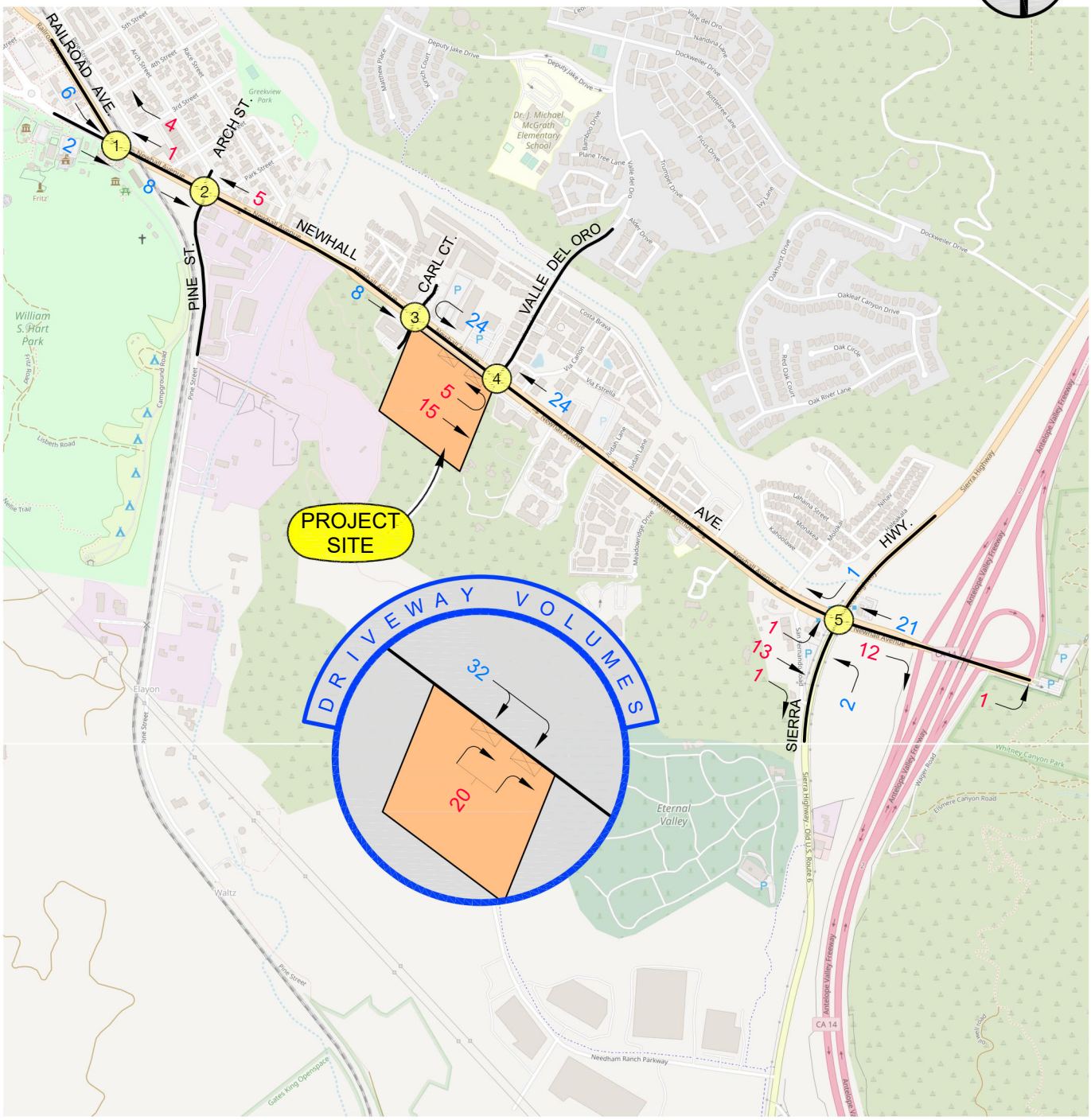

FIGURE 7(b)

PROJECT TRAFFIC VOLUMES
PM PEAK HOUR

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will operate with right-turn entry/exit only restrictions. As such, vehicles departing the project site and wishing to continue westerly along Newhall Avenue will be required to exit in the eastbound direction of Newhall Avenue and make a U-turn maneuver at the nearby signalized intersection at Valle del Oro in order to reorient to the westbound direction.

Similarly, vehicles traveling westbound along Newhall Avenue that wish to enter the project site will be required to continue past the project site to make a U-turn at the signalized intersection at Carl Court, thereby reorienting their travel path to the eastbound direction where they can enter the project by turning right into either of the two project driveways.

Project Roadway Improvements

As previously described, the project's only roadway frontage is located along the southern side of Newhall Avenue. Within the immediate project vicinity, this roadway is currently configured with three travel lanes in each direction, along with a raised median island that also accommodates left-turn channelization at most intersections, as well as at several mid-block driveway locations. Therefore, since Newhall Avenue adjacent to the project site is fully developed, no project-related roadway improvements (right-of-way dedications or widenings) are anticipated to be required.

TRAFFIC IMPACT ANALYSIS STUDY AREA

Environmental Setting

The project site is located along the southern side of Newhall Avenue, between Carl Court to the west and Valle del Oro to the east, in the City of Santa Clarita. The area surrounding the site is developed primarily with single and multi-family residential uses, although frontages along each side of Newhall Avenue exhibit moderate to high levels of commercial and retail development.

Area Transportation Facilities

The project area is well served by both local and regional transportation facilities, including the Antelope Valley (SR-14) Freeway and the Golden State (I-5) Freeway. In addition to these regional transportation facilities, a number of major and secondary arterial roadways also serve the general study area, as does a relatively well-developed local street grid. Descriptions of the key transportation facilities in the project vicinity are provided in the following pages.

Freeways

Antelope Valley (SR-14) Freeway – The primary transportation facility in the project vicinity, the Antelope Valley Freeway, located about three-quarters of a mile east of the site, typically provides three mixed-flow lanes plus a high-occupancy vehicle ("HOV" or carpool) lane in each direction. The Antelope Valley Freeway connects to the Golden State (I-5) Freeway via a full interchange about two and one-half miles south of the project site, and continues in a generally northeasterly direction to provide access to the cities of Palmdale and Lancaster, and points further to the north. The nearest ramp connections to the surface street network serving the project site and vicinity are located at Newhall Avenue (about three-quarters of a mile to the east).

Golden State (I-5) Freeway – Although located approximately two miles west of the project site, this freeway provides an important north-south connection along the entire western coast of the United States and throughout the State of California and links the City of Los Angeles and surrounding region to many other major California cities, including Sacramento and San Diego. Within the general vicinity of the proposed project, the Golden State Freeway typically provides four or five mixed-flow lanes in each direction, with additional/auxiliary lanes provided between access ramps and freeway interchanges. The most convenient access to the study area from the Golden State Freeway is provided via the Antelope Valley Freeway, as described earlier.

Streets and Highways

Newhall Avenue – This roadway, which provides the northern boundary of the project site, is the primary east-west travel route through the study area and much of the "Downtown Newhall" portion of the City of Santa Clarita. Beginning at the Antelope Valley (SR-14) Freeway, Newhall Avenue is classified as a Major Street as it continues westward past the project site and through the Newhall community to Railroad Avenue where it is downgraded to a Minor Street classification throughout the remainder of its length to its terminus at the South Fork Santa Clarita River.

Sierra Highway – This generally north-south oriented Major Street is located slightly less than three-quarters of a mile south of the project, and provides an important surface street alternative to the Antelope Valley Freeway from its southern terminus at San Fernando Road/The Old Road near the Golden State/Antelope Valley Freeway interchange, through the Santa Clarita Valley and then northerly out of the area and into the San Gabriel Mountains, where it continues through the community of Acton and the cities of Palmdale and Lancaster to its ultimate northern terminus in the City of Mojave. Within the immediate study area, Sierra Highway provides two travel lanes in each direction, along with dedicated turn lanes at key intersections. On-street parking is generally prohibited along both sides of Sierra Highway throughout the project vicinity.

Railroad Avenue – This Major Street is located near the western edge of the study area, and provides a key travel route from Newhall Avenue through the Santa Clarita communities of Newhall and Saugus before becoming "Bouquet Canyon Road" north of Magic Mountain Parkway. Continuing as a Major Street, Bouquet Canyon Road serves the community of Bouquet Canyon and points further to the north outside the City of Santa Clarita through the San Gabriel Mountains to its ultimate terminus in the Leona Valley community of unincorporated Los Angeles County. On-street parking is typically prohibited along both sides of Railroad Avenue throughout its length.

Pine Street/Arch Street – This Minor Street, also known as Pine Street south of Newhall Avenue, runs roughly parallel to the Union Pacific Railroad tracks, and serves several industrial facilities before becoming an unimproved (dirt) road that continues through the Gates King Open Space. To the north of Newhall Avenue, the roadway is named Arch Street, also a Minor Street, and provides access to a small residential community, where it ultimately terminates at Market Street. On-street parking is typically prohibited on both sides of the roadway along most segments of Pine Street (except near its intersection with Newhall Avenue), although it is generally allowed on both sides of Arch Street within the residential neighborhood it serves (north of Newhall Avenue).

Carl Court – This Private Street is located adjacent to the western border of the project site, and serves as a cul-de-sac access road for several commercial/retail businesses along its short length between Newhall Avenue and its terminus approximately 300 feet to the north. To the south of Newhall Avenue, Carl Court serves as a driveway to the Santa Clarita Post-Acute Care Center. "No Stopping at Any Time" signs are posted along both sides of Carl Court.

Valle del Oro – This roughly north-south oriented Secondary Street connects Newhall Avenue on the south and Dockweiler Drive on the north, and provides access to both of these roadways for several small residential neighborhoods located along its length. Valle del Oro is striped to provide one travel lane in each direction, with parking typically permitted along both sides of the roadway.

Public Transportation

Public transportation services in the project vicinity consist primarily of local-serving bus lines that provide access to shopping, business, educational, and recreation destinations in the area, although some regional transit opportunities are also available. While the study area in general exhibits a number of bus lines and other public transit facilities, only one local-access bus line and one regional bus route (service to the North Hollywood Metro Station) currently serve the project site directly or provide stops within convenient walking distance (about one-quarter mile).

All of the bus lines in the study area are operated by Santa Clarita Transit, which is the primary service provider in the City of Santa Clarita. These lines provide multiple stops throughout the immediate project vicinity, as well as direct connections to the McBean Regional Transit Center and the Newhall Metrolink Station, thereby allowing for access between the project site itself and the larger regional area through connections to the regional-serving public transit opportunities available at these transit centers. A map of the bus stops located in the immediate vicinity of the proposed project is provided in Figure 8(a), while a map of the overall bus services provided by Santa Clarita Transit throughout the Santa Clarita region is shown in Figure 8(b). Route maps and schedules for the two site-serving bus lines are provided in the appendix to this document.

Therefore, the project site is currently served by public transit services that provide access to both local and regional destinations, and as such, it is anticipated that some project residents will utilize these facilities. However, as described earlier, in order to present a conservative estimate of the proposed project's trip generation, and to assure that all potential project-related traffic impacts are identified, no additional project-related public transit usage beyond that intrinsically included in the "baseline" ITE trip generation rates shown earlier in Table 1 were assumed in this analysis.

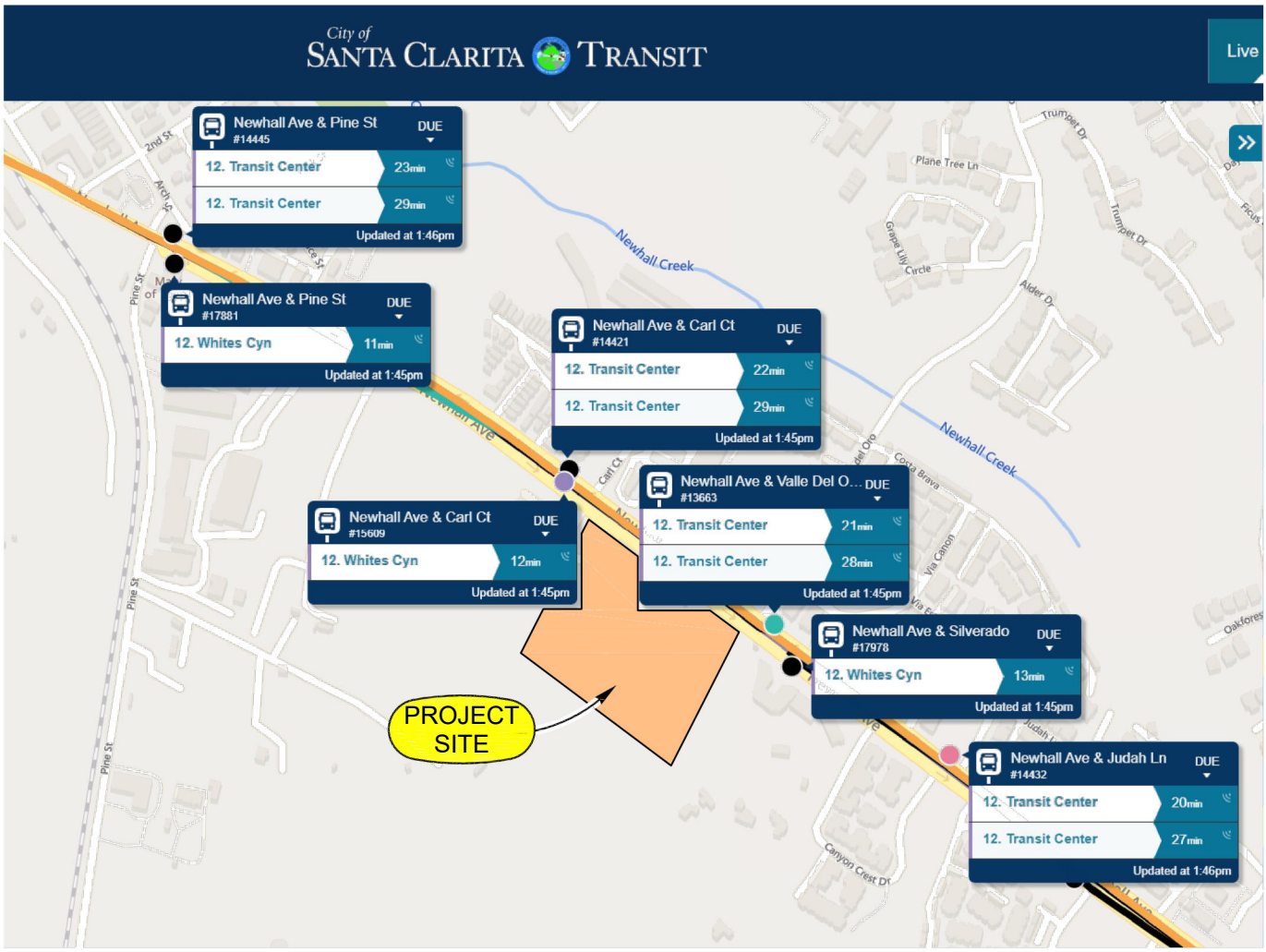


FIGURE 8(a)

PROJECT AREA TRANSIT SERVICE STOP LOCATIONS

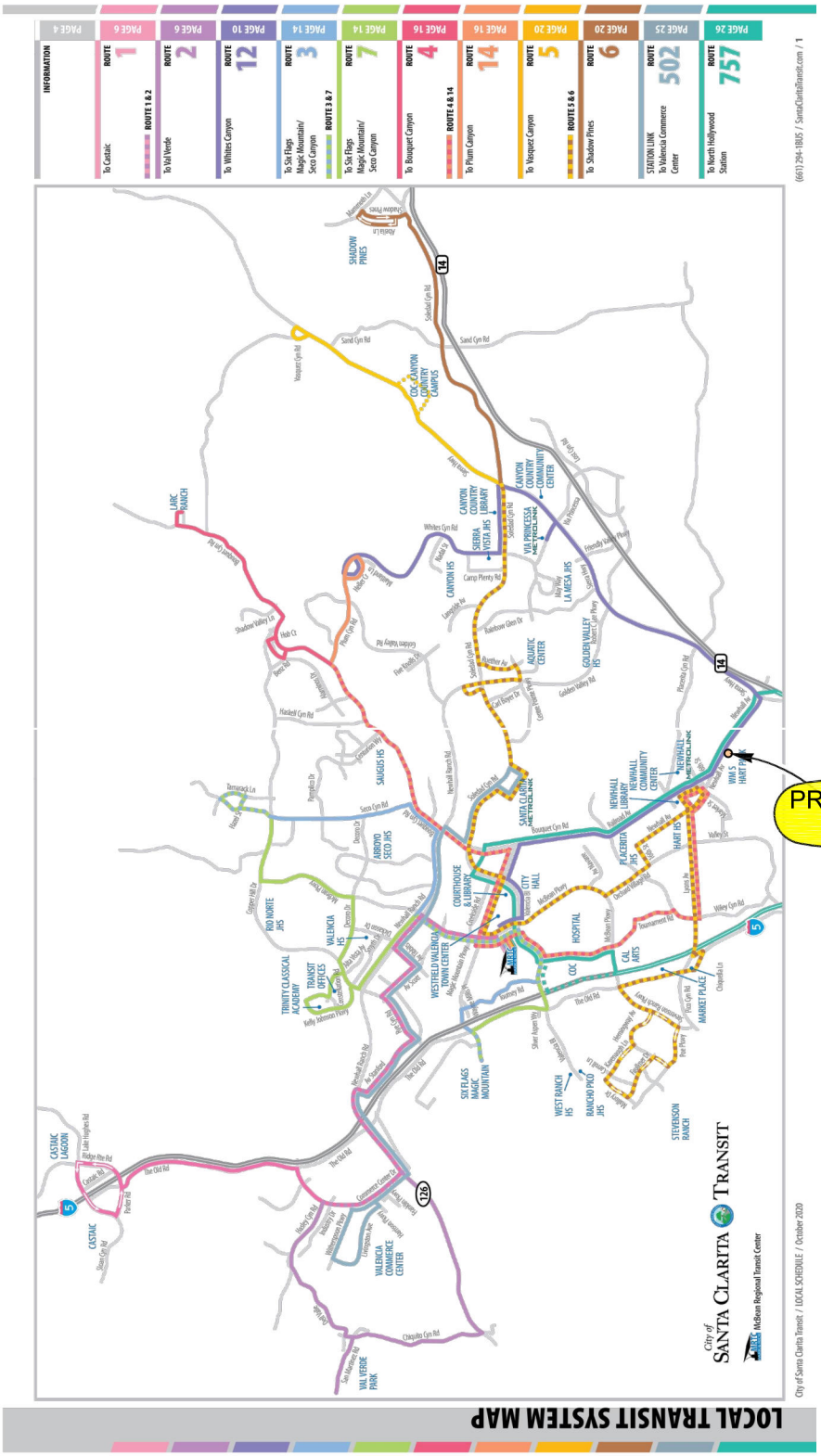


FIGURE 8(b)

SANTA CLARITA TRANSIT SYSTEM ROUTE MAP

STUDY AREA TRAFFIC VOLUMES

Existing (Year 2021) Traffic Volumes

Existing (No Project) Conditions

Since area traffic conditions continue to be affected by COVID-19 pandemic-related restrictions, it was determined that the collection of new traffic data would not be appropriate at this time. However, historical traffic volumes for each of the signalized intersections analyzed in this study were provided by the City's Traffic and Transportation Planning Division. These historical data were then increased using an annual growth factor of two percent (2%), compounded annually, from the year they were collected to the current year (2021) in order to estimate the traffic volumes at each of the five study intersections under normal (non-COVID) conditions.

The traffic data reflect typical mid-week conditions, during weeks with no holidays or other notable special events, and with area schools and businesses generally exhibiting normal operations. The "peak hour" traffic volumes used in this analysis reflect the four highest-volume consecutive 15-minute periods within the overall "peak period" traffic count widows of 7:00 AM to 9:00 AM, and 4:30 PM to 6:30 PM, and were identified individually for each intersection, assuring that the "worst case" operational conditions at each location were studied. The "existing" (year 2021) weekday peak hour traffic volumes at each of the study intersections are shown in Figure 9(a) for the AM peak hour conditions, and in Figure 9(b) for the PM peak hour conditions.

Existing With Project Conditions

The current traffic study policies for the City of Santa Clarita require that an analysis of the potential effects on the existing traffic conditions in the study area be prepared to identify impacts that may result from the proposed project itself. The traffic volumes for this scenario were developed by adding the project traffic volumes shown earlier in Figures 7(a) and 7(b) to the existing (year 2021) traffic volume (estimates) identified in Figures 9(a) and 9(b). The resulting AM and PM peak hour "Existing (2021) With Project" traffic volumes are shown in Figures 10(a) and 10(b), respectively.

Future (Year 2023) Traffic Volumes

In addition to the "Existing (2021) With Project" analyses described above, the City also requires an evaluation of the effects of the proposed project on the forecast future conditions in the area. The future study year is identified as the date when the project is expected to be completed and

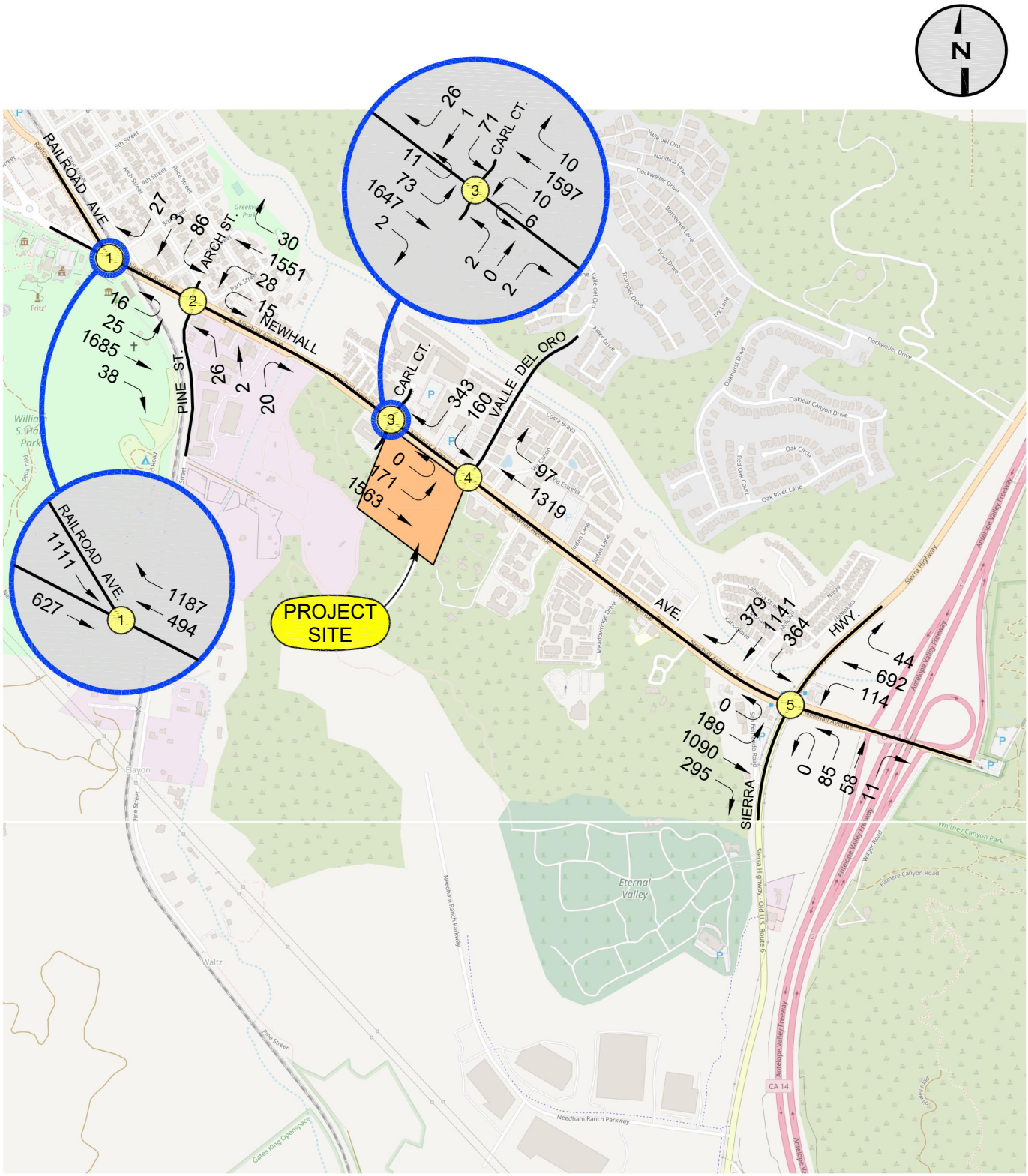


FIGURE 9(a)

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

EXISTING (2021) TRAFFIC VOLUMES
AM PEAK HOUR

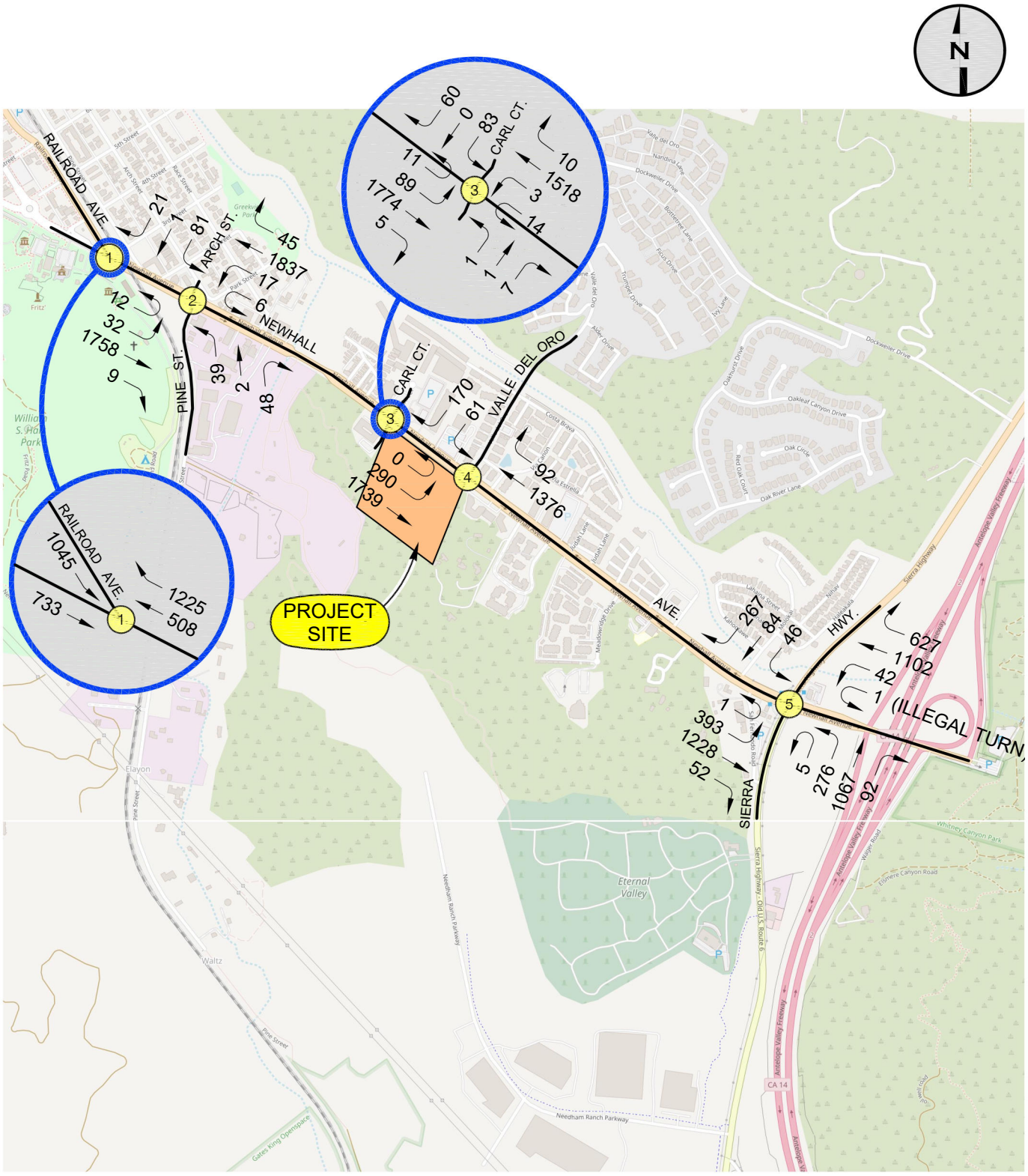


FIGURE 9(b)

EXISTING (2021) TRAFFIC VOLUMES
PM PEAK HOUR

Hirsch/Green Transportation Consulting, Inc.

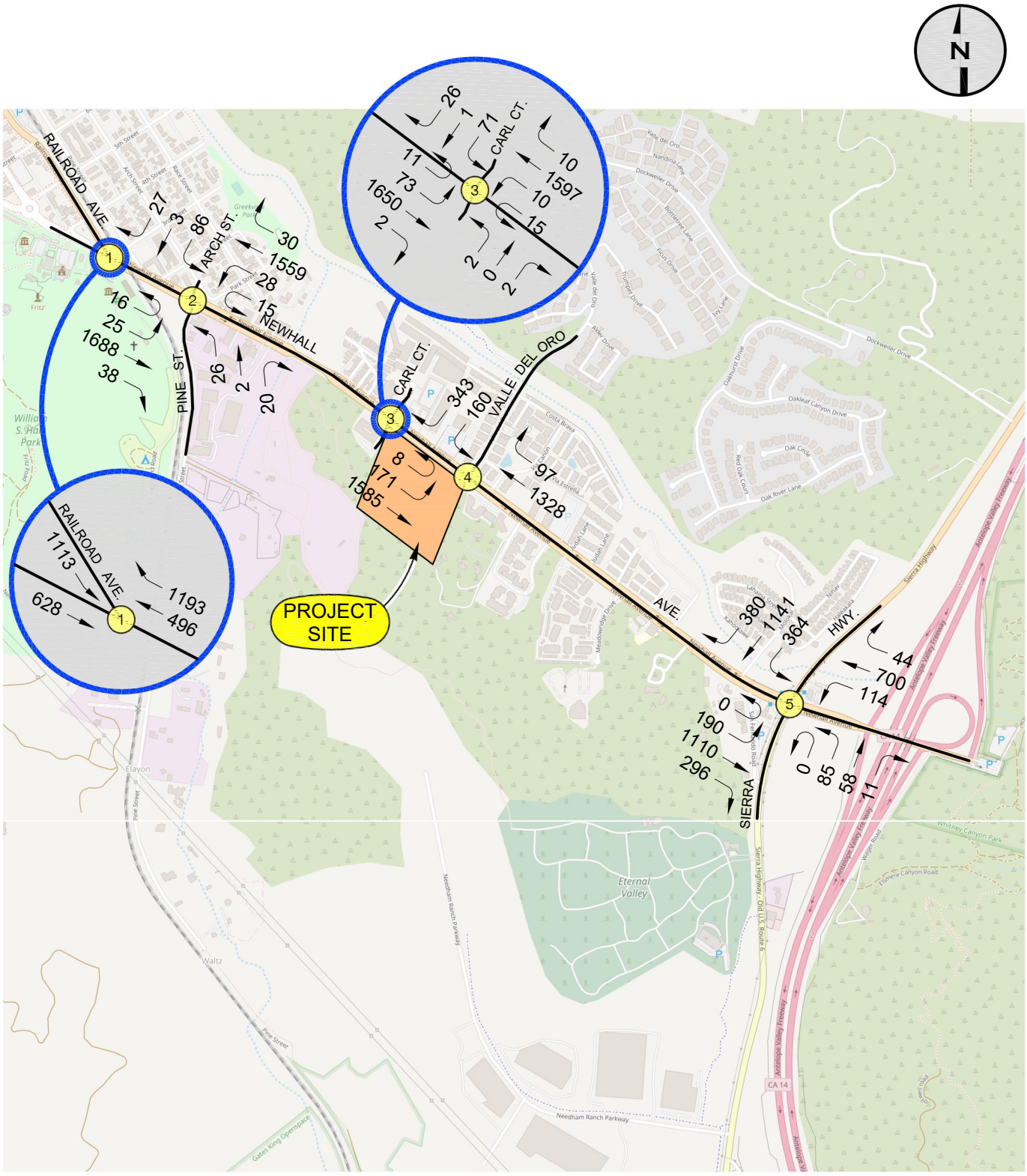


FIGURE 10(a)

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

EXISTING (2021) TRAFFIC VOLUMES
WITH PROJECT
AM PEAK HOUR

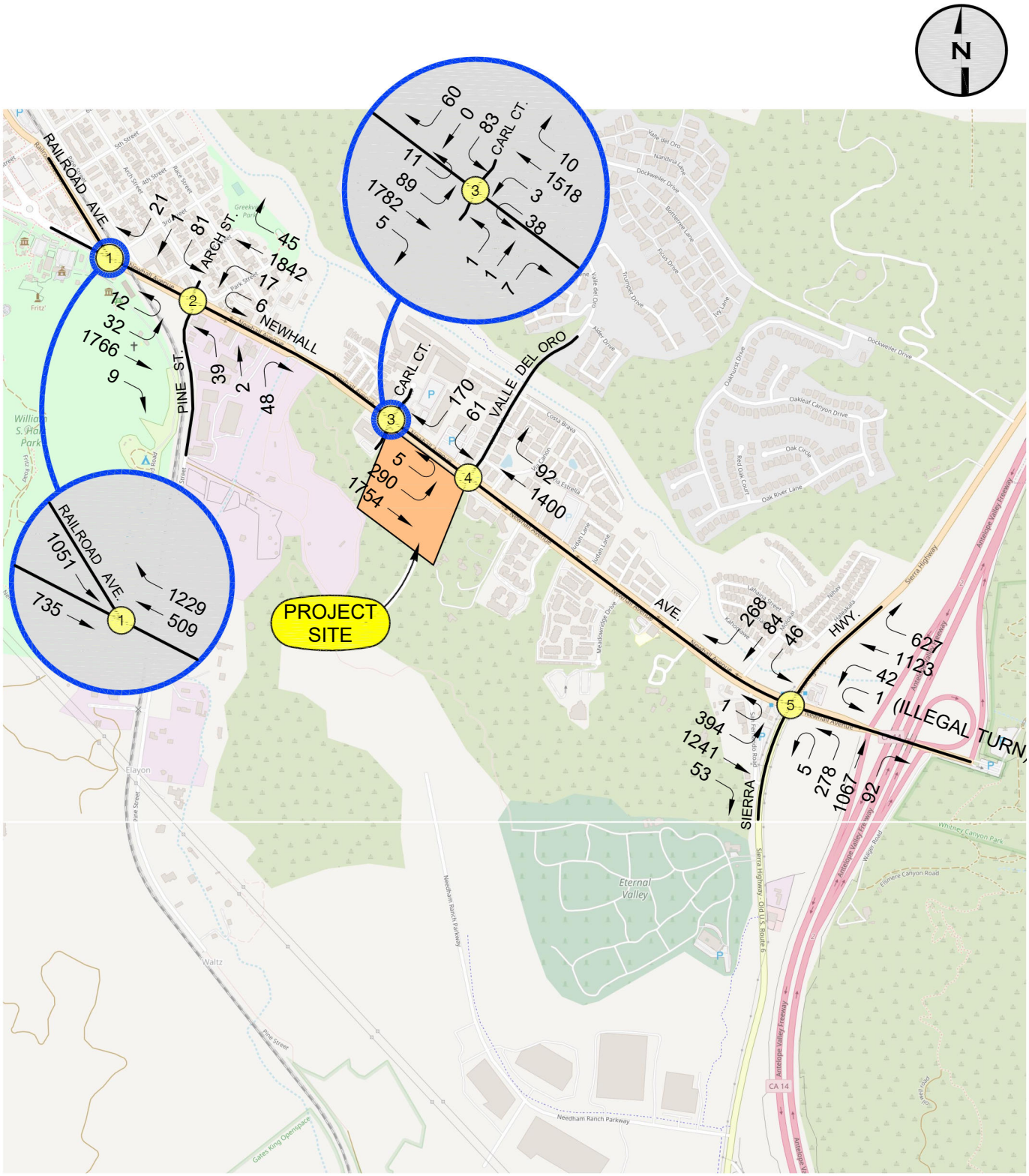


FIGURE 10(b)

EXISTING (2021) TRAFFIC VOLUMES
WITH PROJECT
PM PEAK HOUR

Hirsch/Green Transportation Consulting, Inc.

4/20/2021

fully occupied and operational, which for the purposes of this study, is assumed to occur by the end of the year 2023. The future conditions analyses identify the project-specific traffic impacts on the future roadway system, as well as the potential effects of anticipated future traffic growth on area traffic operations, which may be exacerbated by development of the proposed project.

Future traffic volumes in the project vicinity, and indeed throughout the region, are anticipated to increase as a result of a number of factors, although two factors contribute most significantly to area traffic growth. The first of these factors is "ambient traffic growth", which occurs on both a local and regional basis for a variety of reasons, including but not limited to increases in area population (not specifically tied to new development), additional vehicles for existing households (as children become driving age, or new multi-vehicle status for current single-vehicle families), economic influences such as new jobs creating new worker trips, and other factors.

The second factor is new traffic resulting from ongoing or continuing development. This factor is generally regarded as more localized than the general ambient growth factor described earlier, and is based on information regarding specific development activity within or proximate to the study area. However, the City's Traffic and Transportation Planning Division staff indicated that, because the proposed project is expected to be completed within about three years, it is unlikely that any other currently-proposed development in the study area would be completed within that time period, and as such, the specific inclusion of traffic increases due to nearby "related projects" beyond the levels identified via the use of the "ambient growth factor" would not be appropriate.

Therefore, since the proposed project is not expected to be built and fully occupied immediately, its traffic, and consequently, the impacts of that traffic, will occur on a roadway system that is expected to exhibit more traffic than under the "Existing (2021)" conditions described previously. As a result, this study was expanded to include an analysis of potential future traffic conditions, reflecting the traffic volumes in the study area at the time the proposed project is expected to be completed and fully occupied. The process used to estimate the "Future (2023)" traffic volumes at the study intersections, including the forecast "without project" conditions against which the proposed project's incremental traffic effects are assessed, is described in the following pages.

Future Without Project Forecast Traffic Conditions

The methodology used in this study to estimate the potential future traffic volumes at each of the study intersections consisted of several steps. First, as described in detail earlier in this report, the current (year 2021) traffic volumes in the study area were identified from historical traffic data

provided by the City. Similar to the procedure used to estimate the year 2021 traffic volumes based on these historical data, the future year traffic volumes were also developed through the use of an annual ambient traffic growth factor, which was applied to all of the traffic movements at each study intersection to form the "baseline" traffic volumes for the future study year of 2023.

Ambient Traffic Growth

In this case, a second “ambient traffic growth factor” was used to account for future increases in traffic expected within the study area due to general ongoing regional population growth, as well as from potential additional traffic associated with future as-yet unidentified development, or from known projects that are approved and currently under or awaiting construction but located outside the immediate study area (”related projects”, as briefly discussed previously).

Based on historical traffic growth trends within the general study area, the City of Santa Clarita’s Traffic and Transportation Planning Division staff determined that a growth factor of 3.0 percent was appropriate for the purposes of this study to account for potential future traffic increases. This growth factor, compounded annually, was applied to the “existing” year 2021 traffic estimates described earlier in this report to develop the future “baseline” traffic volumes for the analysis of the year 2023 conditions. The forecast “Future (2023) Without Project” scenario traffic volumes used in this study are shown in Figures 11(a) and 11(b) for the AM and PM peak hours, respectively. The values shown in these figures represent the forecast future (year 2023) traffic volumes in the study area prior to the development of the proposed project and form the "benchmark" against which the project’s potential traffic impacts on the area street system are evaluated.

Future With Project Forecast Traffic Conditions

Finally, the total net project-related traffic volumes shown previously in Figures 7(a) and 7(b) were then combined with the forecast future year 2023 “Without Project” benchmark volumes identified in Figures 11(a) and 11(b) to produce the “Future (2023) With Project" traffic volume estimates, which are shown in Figures 12(a) and 12(b) for the AM and PM peak hour conditions, respectively. These future year (2023) “Without Project” and “With Project” traffic volume forecasts were used as the basis for determining the incremental traffic impacts at each of the study intersections attributable to the proposed project at the time of its expected completion.

The analyses of both the existing (year 2021) and forecast future (year 2023) operations at each of the five study intersections are discussed in detail in the following section of this report. Specifically, these analyses include the evaluation of both the existing and future “Without Project”

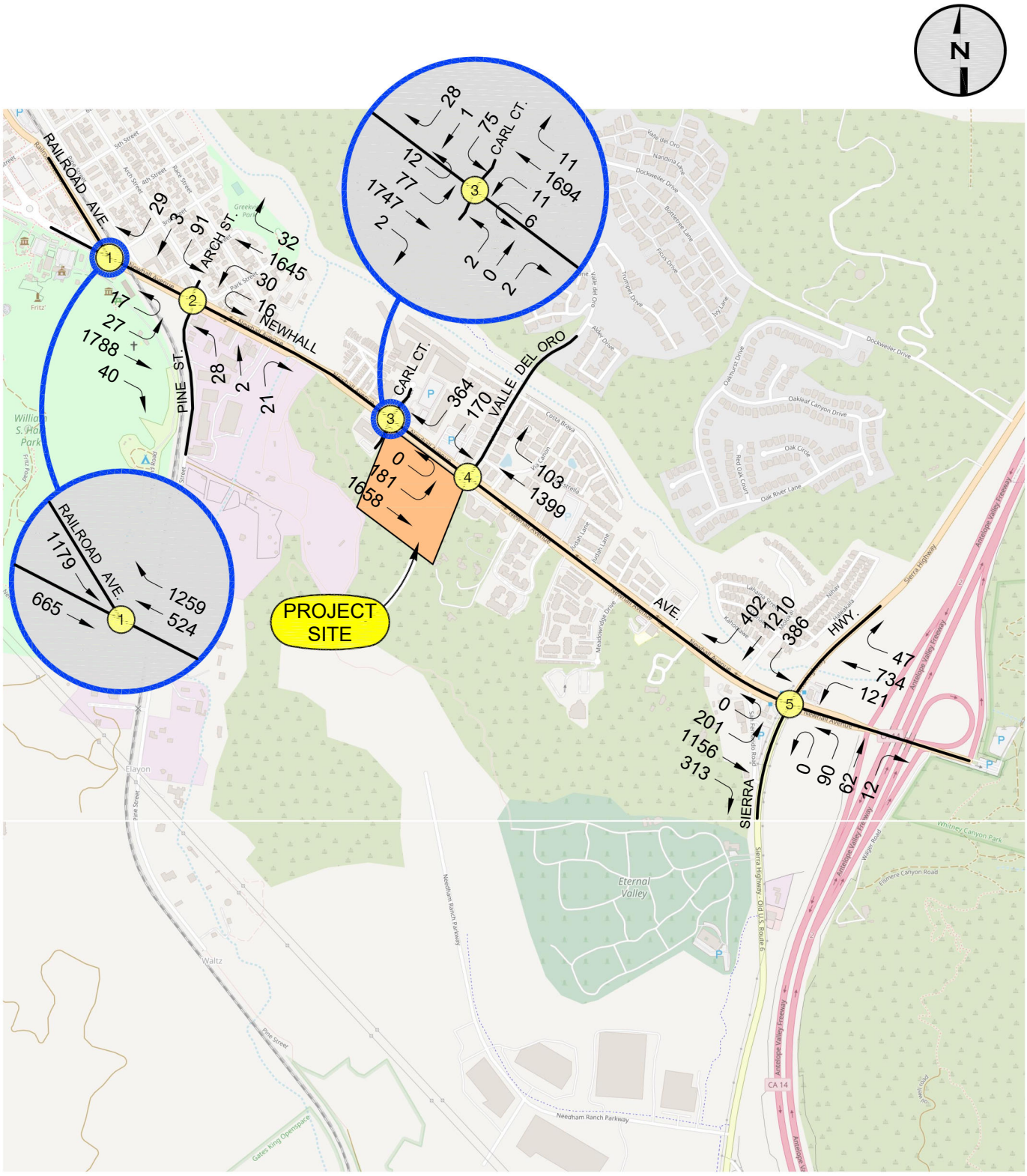


FIGURE 11(a)

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

FUTURE (2021) TRAFFIC VOLUMES
WITHOUT PROJECT
AM PEAK HOUR

4/1/2021

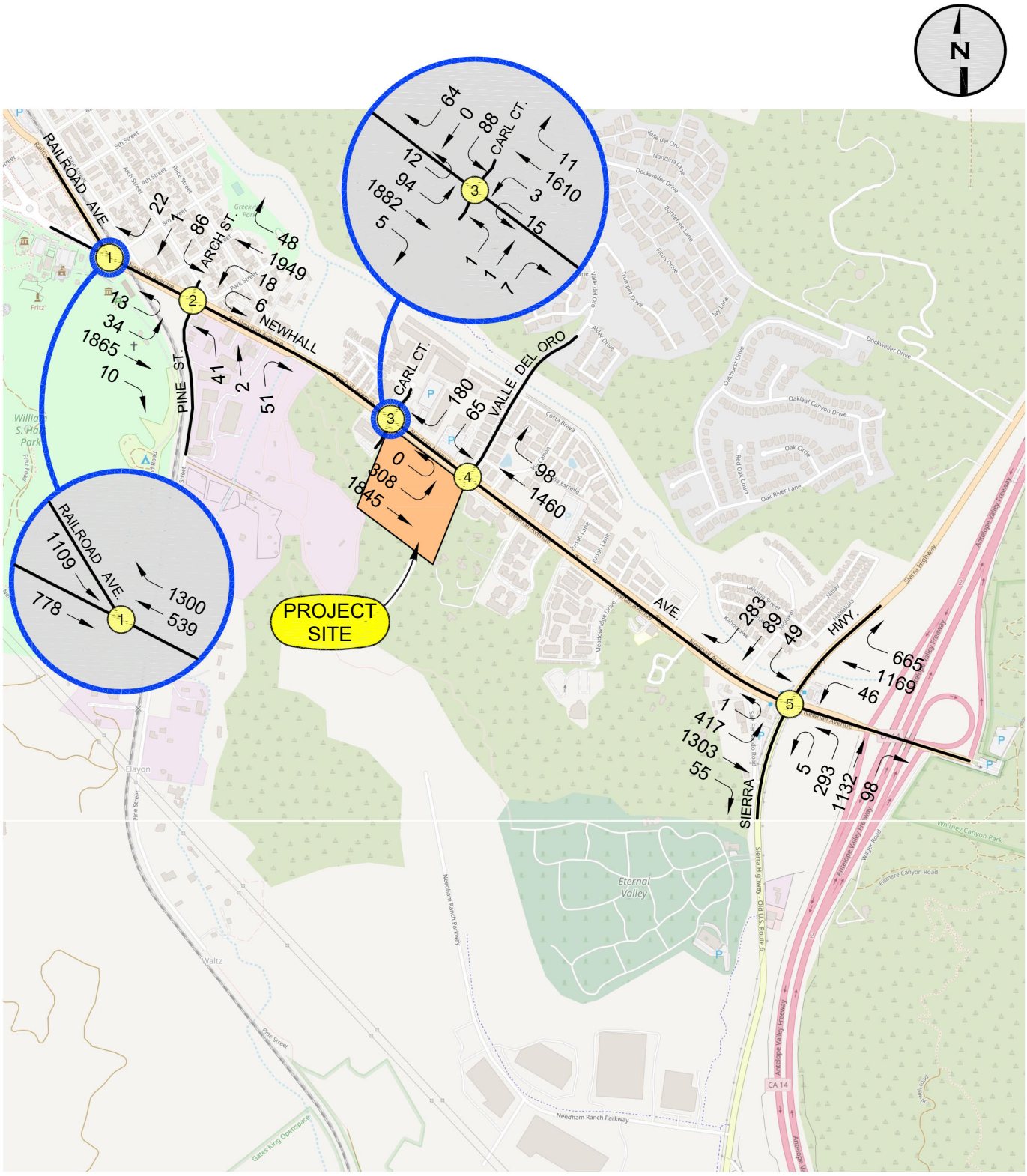


FIGURE 11(b)

4/1/2021

Hirsch/Green Transportation Consulting, Inc.

FUTURE (2021) TRAFFIC VOLUMES
WITHOUT PROJECT
PM PEAK HOUR

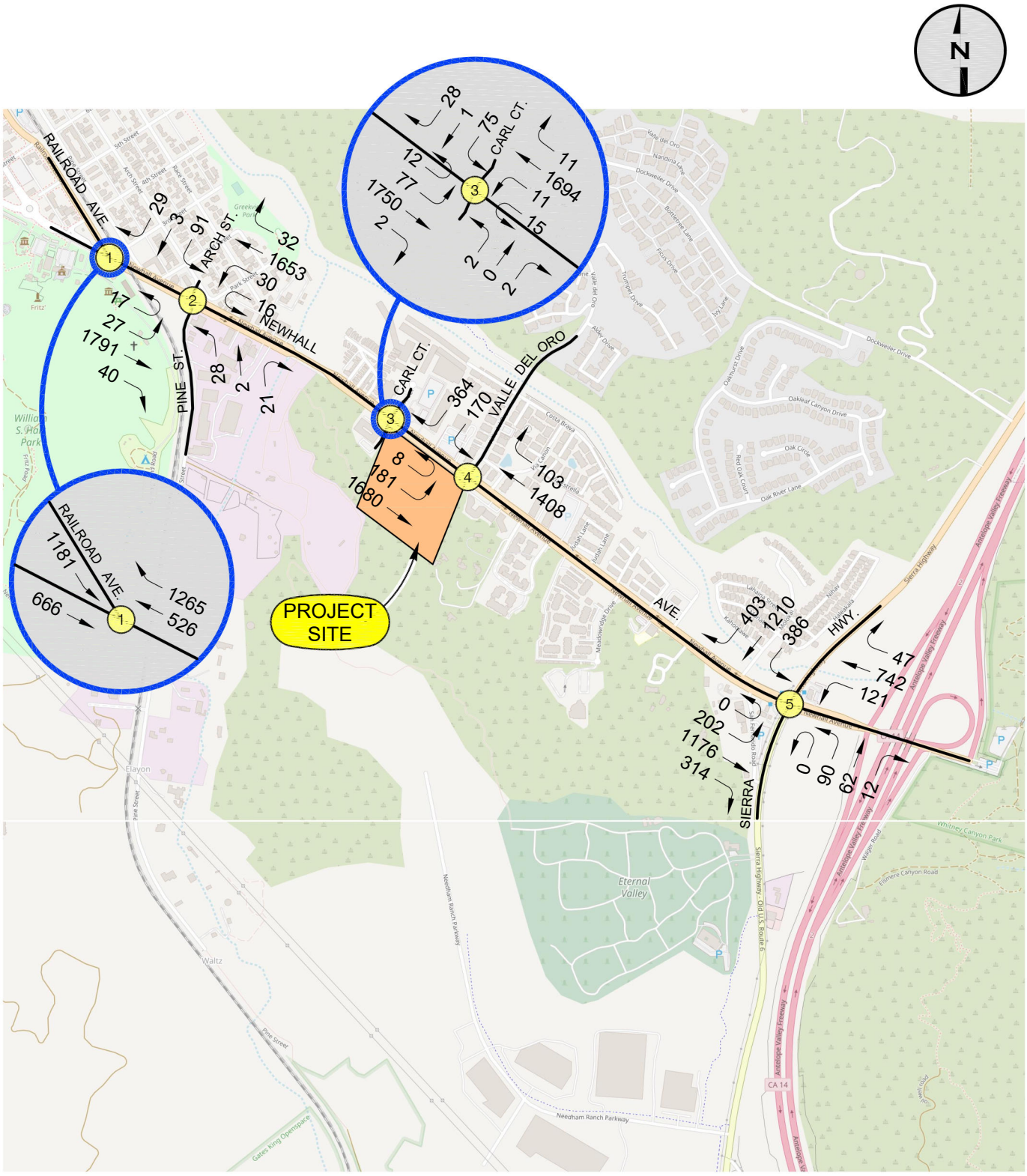


FIGURE 12(a)

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

FUTURE (2021) TRAFFIC VOLUMES
WITH PROJECT
AM PEAK HOUR

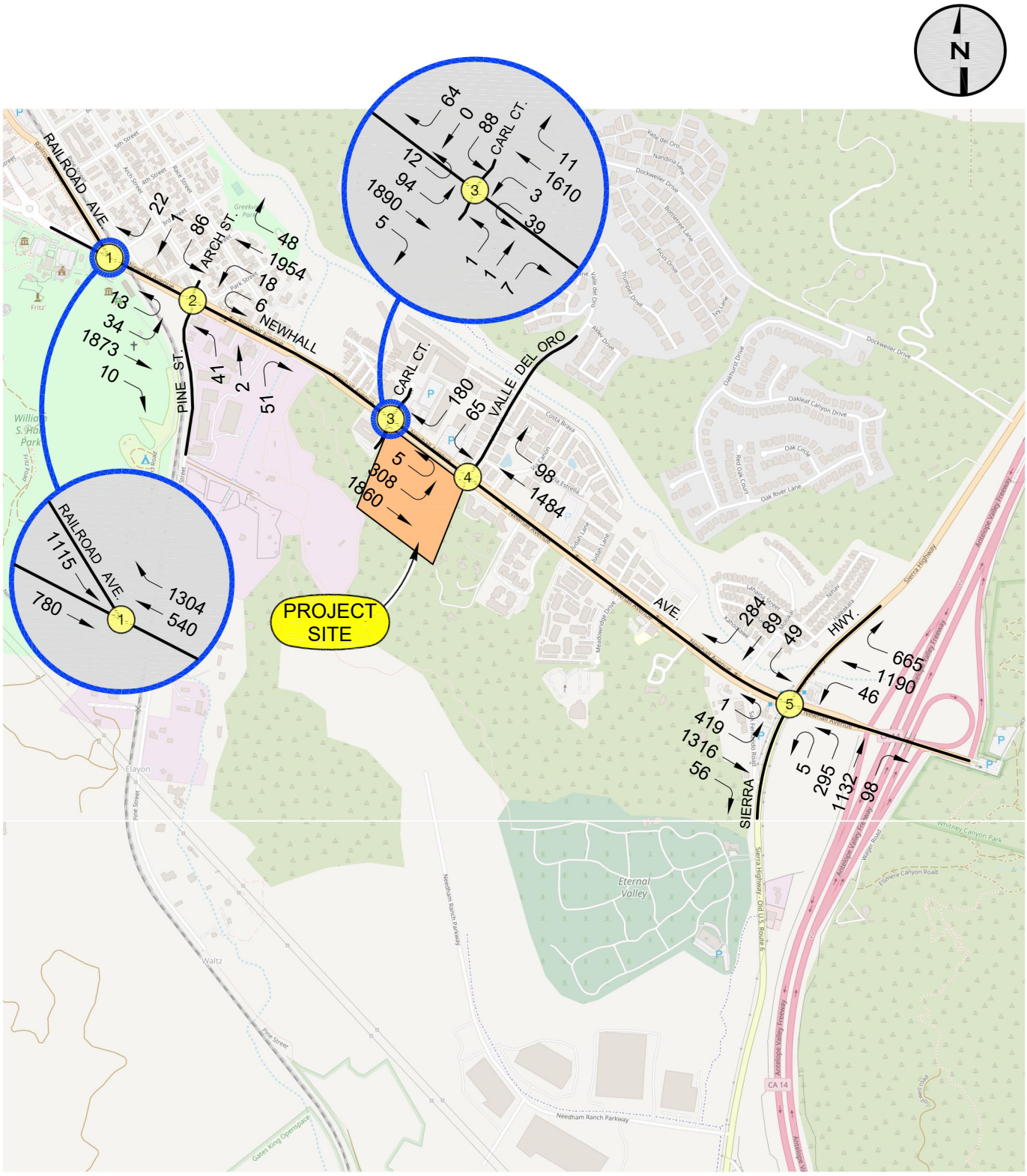


FIGURE 12(b)

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

FUTURE (2021) TRAFFIC VOLUMES
WITH PROJECT
PM PEAK HOUR

intersection traffic conditions shown earlier in Figures 9(a) and 9(b), and Figures 11(a) and 11(b), respectively, each of which reflect the traffic volumes in the study area prior to completion of the proposed project, as well as for the existing and forecast future "With Project" traffic conditions identified in Figures 10(a) and 10(b), and Figures 12(a) and 12(b), respectively, which represent the anticipated traffic volumes at each of the five study intersections following the completion and full occupancy of the proposed project. As also described in the following section of this report, the evaluation and comparison of the appropriate existing and forecast future "Without Project" and "With Project" traffic conditions for each of the analyzed intersection allows for the identification of the incremental project-specific traffic impacts at each study location, as is necessary in order to determine the "significance" of any potential project-related traffic impacts to the key intersections serving the project site specifically, and to the study area in general.

ANALYSIS OF AREA TRAFFIC CONDITIONS

Detailed analyses of the existing (year 2021) and forecast future (year 2023) traffic conditions in the project vicinity, as described in detail in the preceding sections of this study, were performed at a total of five signalized intersections located adjacent to the site of the proposed project or within the immediate vicinity. These intersections, listed below, are those locations considered by the City of Santa Clarita Traffic and Transportation Planning Department to be the most likely to be affected by traffic generated by the proposed project.

1. Newhall Avenue and Railroad Avenue
2. Newhall Avenue and Pine Street/Arch Street
3. Newhall Avenue and Carl Court
4. Newhall Avenue and Valle del Oro
5. Newhall Avenue and Sierra Highway

The locations of each of the five study intersections in relation to the site of the proposed project are shown previously in Figure 3 of this report.

Existing Highway System Improvements

The roadway network serving the study area is already improved with a variety of measures to enhance traffic flow and reduce travel delays, including “time of day” semi-actuated traffic signal operations and signal coordination, left-turn and/or right-turn channelization at key intersections, and the prohibition of on-street parking to provide additional travel lanes and roadway capacity.

Ongoing or Programmed Future Highway System Improvements

As noted earlier, a variety of intersection and/or roadway enhancements are already in place on the existing roadway network serving the study area, including both physical improvements (such as left-turn and/or right-turn lanes at most intersections) and traffic signal enhancements (“time of day” traffic signal timing and coordination). The presence of such measures indicates an effective use of the available capacity of the existing highway facilities in the project vicinity.

However, despite this good use of the current roadway capacity, a review of the current City of Santa Clarita Capital Improvements list was conducted to identify whether any new roadway or intersection improvements are ongoing or proposed within the study area; that review indicated that no significant roadway or intersection capacity improvements are expected by the assumed

year 2023 project completion date. Further, although other projects in the general project area may be required to implement localized roadway or intersection improvements in order to mitigate their specific traffic impacts, for the purposes of this study in presenting a conservative evaluation of the potential future traffic conditions in the study area, no "mitigation" improvements associated with such other nearby development projects are assumed in this study.

As a result, the evaluations of the forecast (year 2023) "Without Project" traffic conditions in the study area conservatively assumed that the future roadway network, including the geometries and capacities of each of the five study intersections, would remain unchanged from those identified in the analysis of the existing (year 2021) "Without Project" traffic conditions.

Analysis Methodology and Results

The City of Santa Clarita evaluates the operations of intersections within its jurisdiction based on the intersection analysis methodologies described in the Highway Capacity Manual ("HCM")[2]. This document provides analysis techniques based on the average vehicle delay, identified as a function of the intersection capacity and the volume of traffic passing through the intersection. Therefore, pursuant to the City's traffic study analysis procedures, all study intersections were analyzed using the HCM delay-based criteria. Further, the City of Santa Clarita requested that these evaluations be prepared using a detailed computerized traffic modeling program known as SYNCHRO, which evaluates not only the operations (vehicle delays and levels of service) of specific intersections, but also provides information regarding the corridor-level traffic flows, along with vehicular queuing on various intersection approaches, and other relevant data. The City also required that all traffic conditions be analyzed using the SYNCHRO data files provided to this firm.

Under the HCM analysis methodology, "capacity" is expressed in terms of calculated "flow rate", which represents the maximum total hourly volume of vehicles in the critical lanes that has a reasonable expectation of passing through an intersection under prevailing roadway conditions. Critical lanes are generally defined as those intersection movements or groups of movements which exhibit the highest "per lane" volumes, thereby defining the maximum number of vehicles attempting to travel through the intersection during a specific time period. Intersection capacity also varies based on the number of traffic signal phases; more signal phases generally result in additional "lost" or "startup" time, due to slight driver reaction delays when the signal indications change from "red" to "green", thus reducing the overall efficiency (and capacity) of an intersection.

[2] Highway Capacity Manual, Transportation Research Board, Washington, D.C., 2016.

"Level of Service" ("LOS") describes the quality of traffic flow through the intersection. LOS A through LOS C exhibit good traffic flow characteristics, with little congestion. LOS D is typically the level for which metropolitan area street systems are designed and is considered by the City of Santa Clarita to be the highest "acceptable" level of service. LOS E defines conditions at or near the capacity of an intersection, and is characterized by short-duration stoppages and unstable traffic flows at its upper range. LOS F conditions occur when a facility is overloaded, and reflect stop-and-go traffic with long-duration delays. Note that the LOS levels do not represent a single operating condition, but correspond to a range of delay values, as indicated in Table 4. Most jurisdictions in the Southern California region, including the City of Santa Clarita, typically identify LOS D as the maximum "acceptable" level of operation for intersections in urban areas.

Table 4
Level of Service (LOS) as a Function of HCM Average Vehicle Delay

Ave. Vehicle Delay (sec.)	Level of Service	Intersection Operation/Traffic Flow Characteristics
$\leq$ 10.0	A	No congestion; all vehicles clear in a single cycle.
> 10.0 $\leq$ 20.0	B	Minimal congestion; all vehicles still clear in a single cycle.
> 20.0 $\leq$ 35.0	C	No major congestion; most vehicles clear in a single cycle.
> 35.0 $\leq$ 55.0	D	Generally uncongested, but vehicles may wait through more than one cycle; short duration queues may form on critical approaches.
>55.0 $\leq$ 80.0	E	Increased congestion on critical approaches; long duration queues form at higher end of range.
> 80.0	F	Over capacity; forced flow with long periods of congestion; substantial queues form.

Using the analysis procedures and assumptions described earlier in this report, the HCM delay and corresponding LOS were calculated for both the AM and PM peak hour conditions at each of the five study intersections for the various analysis conditions evaluated in this study, including the "Existing (2021)" (no project), "Existing (2021) With Project", "Future (2023) Without Project", and "Future (2023) With Project" traffic scenarios.

The incremental project-related impacts at each of the study intersections were then determined by comparing the respective "Without Project" and "With Project" analysis results for both the existing (year 2021) and forecast future (year 2023) analysis scenarios. The differences between the delay and LOS values for each of these conditions represent the project-related impacts to

each of the study intersections under both the current and future traffic scenarios. The results of the analysis of both the existing (2021) and forecast future (2023) conditions are shown in Table 5 and described in the following pages, while the SYNCHRO analysis and summary report for each of the study intersections is provided in the appendix of this document.

Existing (2021) Conditions

As shown in Table 5, three of the study intersections, Newhall Avenue and Pine Street/Arch Street, Newhall Avenue and Carl Court, and Newhall Avenue and Valle del Oro, each currently operate at "acceptable" (LOS D or better) conditions during both the AM and PM peak hours. However, the two remaining study intersections of Newhall Avenue and Railroad Avenue, and Newhall Avenue and Sierra Highway both exhibit "undesirable" LOS E operations during the PM peak hour, although both locations operate at acceptable LOS D conditions during the AM peak hour.

Further, as also shown in Table 5, the development of the proposed project and the addition of its associated traffic to the study area roadway system could affect the operations of one or more of the study intersections to varying degrees, depending on the intersection's proximity to the project site, its location along travel routes used by project traffic, or its specific geometries and/or operating characteristics. However, as identified in Table 5, the potential incremental traffic additions associated with the proposed project are expected to produce only nominal changes to the vehicular delays, and are not expected to result in reductions to the existing operations (LOS) at any of the study intersections during either the critical AM or PM peak commute traffic hours.

Future (2023) Forecast Conditions

As further indicated in Table 5, anticipated future traffic growth in the study area is not expected to result in a deterioration of the operations of any of five study intersections during either of the peak hours by the year 2023, prior to the development of the proposed project.

Nonetheless, the net new traffic generated by the proposed project itself could contribute toward the expected future cumulative traffic increases resulting from general area traffic growth, and could therefore affect the operations of one or more of the study intersections. However, similar to the results described earlier for the "Existing (2021) With Project" analysis scenario, Table 5 also shows that the addition of the incremental project-related traffic is again anticipated to result in only nominal changes to the forecast future (year 2023) conditions at the study intersections, and the proposed project's incremental traffic is not expected to affect the future operating conditions (level of service) at any of the study intersections during either the AM or PM peak hours.

Table 5
Study Intersection Operations Analysis Summary (HCM Methodology per SYNCHRO)
Existing (2021) and Future (2023) Peak Hour Conditions

			Existing (2021)					Future (2023)				
			Without Project		With Project			Without Project		With Project		
Int. No.	Intersection	Peak Hour	Delay (sec.)	LOS	Delay (sec.)	LOS	Impact (sec.)	Delay (sec.)	LOS	Delay (sec.)	LOS	Impact (sec.)
1	Newhall Avenue	AM	42.9	D	42.7	D	-0.2	49.7	D	50.3	D	0.6
	and Railroad Avenue	PM	57.9	E	57.2	E	-0.7	66.8	E	62.2	E	-4.6
2	Newhall Avenue	AM	8.6	A	8.6	A	0.0	9.1	A	9.2	A	0.1
	and Pine Street/Arch Street	PM	7.4	A	7.7	A	0.3	7.8	A	7.9	A	0.1
3	Newhall Avenue	AM	7.0	A	7.4	A	0.4	7.4	A	7.8	A	0.4
	and Carl Court	PM	13.9	B	15.0	B	1.1	13.3	B	13.9	B	0.6
4	Newhall Avenue	AM	14.8	B	15.0	B	0.2	15.8	B	15.2	B	-0.6
	and Valle del Oro	PM	11.8	B	12.2	B	0.4	11.9	B	12.1	B	0.2
5	Newhall Avenue	AM	48.3	D	48.8	D	0.5	54.2	D	54.2	D	0.0
	and Sierra Highway	PM	59.7	E	60.9	E	1.2	69.1	E	69.3	E	0.2

Note:
"*" Indicates significant impact per City of Santa Clarita traffic study policies and procedures (if shown)

Intersection Impact Significance Criteria

However, the potential changes to intersection levels of service described earlier for both the "Existing With Project" and "Future With Project" analysis scenarios are not the sole standard for evaluating the "significance" of a project's incremental traffic impacts. As shown in Table 6, the City of Santa Clarita identifies two criteria to define a "significant" project-related traffic impact.

Table 6
City of Santa Clarita
Significant Traffic Impact Criteria for Signalized Intersections

Final (With Project) Intersection LOS	Project-Related Increase in Delay (sec.)
A, B, or C	No "Delay-based" impacts; impact occurs if LOS deteriorates to E or F
D	> 4.0 sec. (or if LOS deteriorates to E or F)
E	> 2.0 sec.
F	> 2.0 sec

The first criterion is met if the "pre-project" level of service at a subject intersection is reduced from acceptable (LOS D or better) operations to undesirable LOS E or LOS F conditions by the project's traffic. The second criterion evaluates the significance of any incremental changes to intersection delays based on a "stepped scale", with locations exhibiting higher levels of service being more sensitive to the effects of additional traffic than those with available surplus capacity.

As also identified in Table 6, this criterion identifies a "significant" impact as an increase in an intersection's HCM delay value as a result of project-related traffic, of more than 4.0 seconds when the final ("With Project") intersection operating condition is LOS D, or greater than 2.0 seconds when the final intersection condition is at LOS E or LOS F. No significant impacts are deemed to occur at LOS A, LOS B, or LOS C (except as described earlier for the first evaluation criterion), as these conditions exhibit sufficient surplus capacities to accommodate most traffic increases with little effect on the intersection's traffic flows or overall traffic-related operations.

Based on the intersection impact evaluation criteria shown in Table 6, the potential incremental traffic impacts associated with the development of the proposed project summarized in Table 5 are not considered to reach "significant" levels under either the "Existing (2021) With Project" or

the forecast "Future (2023) With Project" scenarios during either the AM or PM peak hours at any of the five study intersections. Therefore, no project-related traffic impacts are expected to occur, and no traffic mitigation measures at any of the study intersections are warranted.

Local/Residential Street Traffic Impact Analysis

In addition to the analysis of potential project-related intersection impact analyses described in the preceding pages, it is also possible that the new traffic generated by the proposed project could potentially result in impacts to any nearby residential streets that could be utilized as a regular travel route to and from the project site (in order to avoid congestion or delays along other arterial roadways serving the site). However, a review of the project vicinity indicates that there are no local-serving or residential streets that provide either direct access to the project site or a convenient alternative to Newhall Avenue, and therefore, an evaluation of potential project-related traffic impacts to any such facilities in the immediate study area is not warranted.

Project Impacts on Regional Transportation System

To address the impacts of traffic congestion on the quality of life and economic vitality of the State of California, the Los Angeles County Congestion Management Program ("CMP")[3] was enacted to help inform transportation-related decisions in the region. To that end, a countywide approach has been established by the Los Angeles County Metropolitan Transportation Authority ("Metro"), the local agency responsible for implementing the statutory requirements of the CMP, including designating a network of regionally-significant transportation facilities within the County, and monitoring the network's Level of Service standards.

The CMP's project Traffic Impact Analysis ("TIA") guidelines require an analysis of all identified arterial monitoring intersections where the project could add 50 or more total trips during either the AM or PM peak hours. Additionally, all freeway mainline segments where a project could be anticipated to add 150 or more trips in either direction during the peak hours must be analyzed.

CMP Monitoring Intersection Impacts

As shown on Figure 13, the current (2010) Los Angeles County CMP identifies three arterial monitoring intersections within a roughly two and one-half mile radius of the project site including Newhall Avenue (formerly known as "San Fernando Road" as identified in the 2010 CMP) and Lyons Avenue, Newhall Avenue (formerly known as "San Fernando Road" in the 2010 CMP) and

[3] *2010 Congestion Management Program*, Los Angeles County Metropolitan Transportation Authority, 2010.

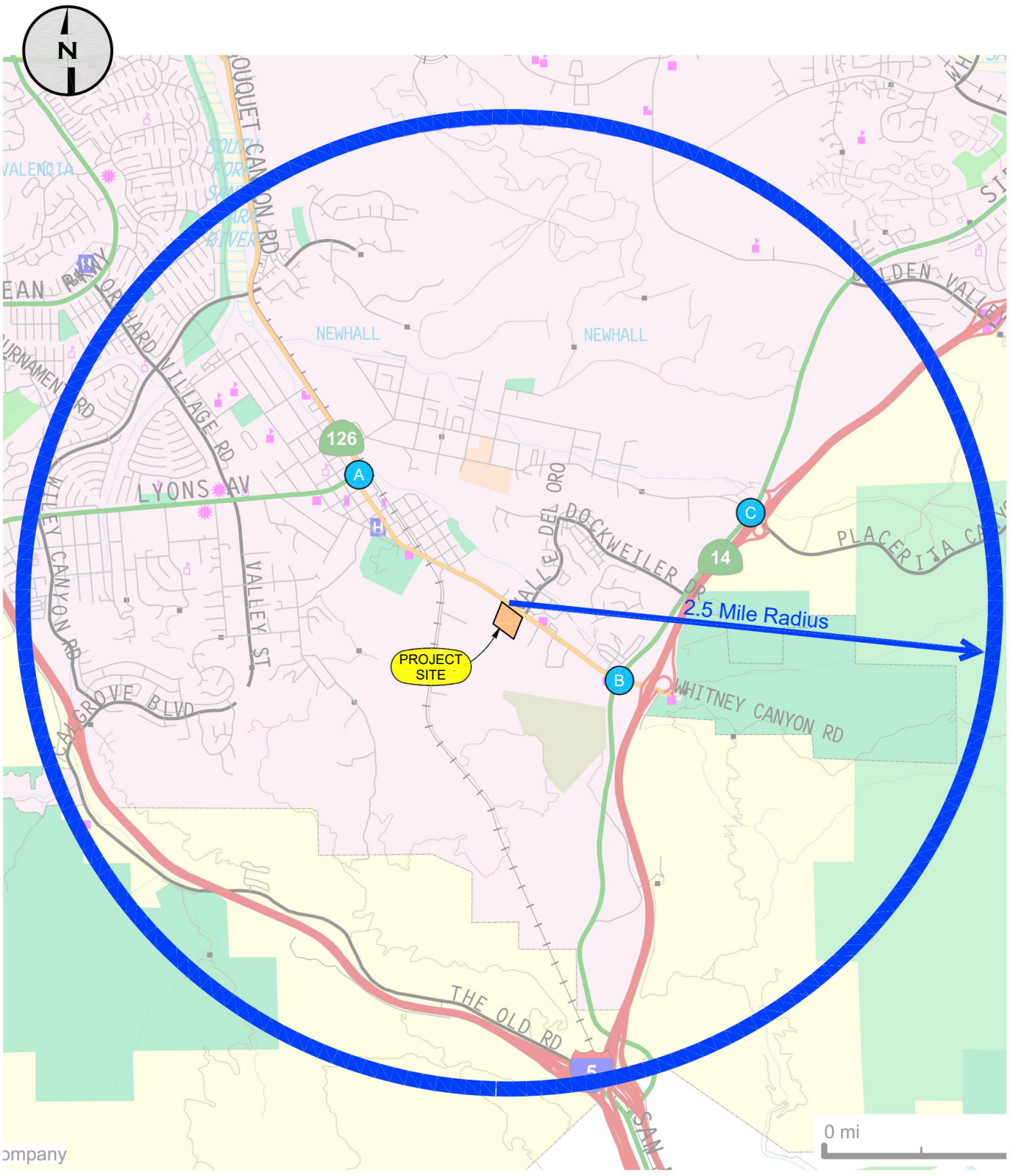


FIGURE 13

CMP ARTERIAL MONITORING LOCATIONS

Hirsch/Green Transportation Consulting, Inc.

Sierra Highway, and Sierra Highway and Placerita Canyon Road. However, the intersection of Newhall Avenue and Sierra Highway is already included as one of the five intersections analyzed in detail in this study, and as such, the proposed project's potential impacts to this location have been identified, and no further CMP-related evaluations of this intersection are necessary.

However, the remaining two locations were not included in the five study intersections already examined in the preceding project traffic impact analyses, and therefore, the net traffic additions to each of these CMP arterial monitoring locations due to the proposed project were evaluated.

A review of the proposed project's trip generation estimates shown earlier in Table 2 indicates that it is anticipated to generate a total of about 42 net trips during the AM peak hour, and a total of about 52 net trips during the PM peak hour, and as a result, would result in net additions to area traffic in excess of the CMP's minimum 50-trip threshold (during the PM peak hour only). However, the general geographic trip distributions for the proposed project shown previously in Figure 5 indicate that its trips are expected to disperse along the surface streets and freeways outside the immediate study area, and as a result, not all of the project's trips are expected to travel through the CMP arterial monitoring intersections nearest to the project site. Specifically, approximately 25 percent of the total ("inbound" and "outbound") trips generated by the project are expected to travel along surface streets to or from northwest of the project site (on Newhall Avenue and Railroad Avenue) and therefore could potentially affect the CMP monitoring intersection of Newhall Avenue and Lyons Avenue. Similarly, approximately five percent of the project's trips are anticipated to travel along the surface street of Sierra Highway to or from the southeast of the site, and potentially through the CMP intersection at Sierra Highway and Placerita Canyon Road.

Based on the general geographic trip distributions identified earlier in Figure 5, and the project's AM and PM peak hour trip assignments shown previously in Figures 7(a) and 7(b), respectively, it is anticipated that a total of about 11 trips (three inbound, eight outbound), including eight trips (two inbound, six outbound) on Railroad Avenue and three trips (one inbound, two outbound) on Newhall Avenue, could potentially travel through the CMP intersection of Newhall Avenue and Lyons Avenue during the AM peak hour, with a total of about 13 trips (eight inbound, five outbound), including 10 trips (six inbound, four outbound) on Railroad Avenue and three trips (two inbound, one outbound) on Newhall Avenue, potentially affecting this CMP location during the PM peak hour.

Similarly, it is anticipated that only two (one inbound, one outbound) project-related trips would travel northerly along Sierra Highway and potentially through the CMP monitoring intersection at Sierra Highway and Placerita Canyon Road during both the AM and PM peak hours. Note that

the general geographic trip distributions shown in Figure 5 also include an estimated five percent project traffic utilization of the Antelope Valley Freeway to travel to and from the northeast of the project site and into or out of the general study area. However, since these freeway-oriented trips would not affect any of the nearby CMP arterial monitoring intersections, they were not included in the evaluation of potential project-related impacts to the CMP locations in the project vicinity.

Therefore, even based on these "worst case" scenarios, which conservatively assume that all of the net project-related traffic traveling into or out of the study area in the general direction of the two CMP arterial monitoring intersections noted earlier would pass through one or both locations, the proposed project's potential traffic additions to any of these locations will be well below the CMP's 50-trip threshold during both the AM and PM peak hours, and as such, no further analyses are required. Additionally, the relatively nominal number of net project-related trips anticipated to travel through either of the CMP intersections nearest the project would not be sufficient to result in any significant impacts, and as such, no CMP-related traffic mitigation measures are warranted.

CMP Freeway Segment Impacts

An evaluation of the potential for project-related traffic impacts to the freeway facilities serving the project vicinity was also conducted. As briefly noted earlier, the CMP requires a detailed analysis of potential project-related impacts to freeway mainline segments where a project could be anticipated to add 150 or more vehicles per hour in either direction during either peak hour on the subject freeway. However, as shown previously in Table 2, the proposed project is expected to result in substantially fewer than 150 net directional trips during both peak hours, with a maximum of 30 net outbound trips during the AM peak hour (and 12 net inbound trips), and a maximum of 32 net inbound trips (and 20 net outbound trips) during the PM peak hour. As such, the project would not meet the CMP's minimum 150-trip impact analysis threshold during either peak hour, even if all of its traffic was assumed to travel along the nearest freeway serving the study area, the Antelope Valley Freeway, located less than one mile to the southeast of the project site.

Therefore, the project's potential traffic additions to any segment of the Antelope Valley Freeway, or to other freeways serving the larger project vicinity, such as the Golden State Freeway, located nearly three miles west of the project, will be well below the CMP's minimum 150-trip threshold, and as a result, it will not produce in any measurable effects on the operations of these facilities, and no further CMP-based freeway mainline analyses are warranted.

Project Impacts to Area Transit Facilities

As described previously in this report, the project site is currently served by several bus lines, and as a result, it is possible that some of the project's residents would utilize public transportation to travel to and from the project site. However, as also noted earlier, in order to provide for a conservative analysis of the potential traffic-related impacts associated with the proposed project, for the purposes of this study, no significant usage of public transit was assumed for residents of the proposed project beyond that intrinsically included in the "baseline" ITE trip generation rates shown earlier in Table 1. Nonetheless, to assess the potential impacts of the proposed project on the public transportation system serving the study area, it was conservatively assumed that up to 15 percent (15%) of the total "residential" trips generated by the project would elect to travel via the existing (or future) public transportation serving the study area rather than in private vehicles.

Using these assumptions, and based on the trip generation estimates shown earlier in Table 2, the proposed project is estimated to result in a total of approximately 97 new "transit" trips per day, including a total of about six such trips (two inbound, four outbound) during the AM peak hour, and a total of about eight trips (five inbound, three outbound) during the PM peak hour.

Next, these "vehicle" trips were converted to "person" trips, in order to estimate the number of persons initially assumed to be traveling in private vehicles who could instead be anticipated to utilize public transit. Pursuant to the current Los Angeles County CMP guidelines regarding the evaluation of project-related impacts to public transportation facilities, this procedure assumed an average vehicle occupancy ("AVO") of approximately 1.4 persons per vehicle, which is considered to be typical for the Southern California region, including the City of Santa Clarity. Based on this assumption, it is estimated that a total of approximately 136 new project-related persons per day, including a total of about nine new riders (three inbound, six outbound) during the AM peak hour, and about 11 total new riders (seven inbound, four outbound) during the PM peak hour, could use the public transit services available in the study area to travel to or from the proposed project.

While it is acknowledged that bus ridership within the project vicinity can be heavy, particularly during the peak weekday morning and afternoon/evening commute periods, this nominal level of potential new project-related transit rider demand would likely be divided among the bus lines noted earlier that currently provide direct or convenient service to the project site via stops along Newhall Avenue. Together, these existing bus lines provide more than 90 scheduled weekday project-serving stops per day (total of all directions of travel), including about six scheduled stops during the weekday AM peak commute hour (between about 7:00 AM and 8:00 AM) as well as

about six scheduled site-serving stops during the weekday PM peak commute hour (between about 5:00 PM and 6:00 PM). As a result, the potential project-related increases in ridership on any individual bus on any of the existing transit lines serving either the project site specifically or the study area in general are expected to be nominal. Therefore, the proposed project is not anticipated to significantly impact any of the existing (or future) bus service in the project vicinity, and no transit-related mitigation measures are warranted for the project.

MITIGATION MEASURES

The results of the analyses summarized in this report indicate that the proposed development of a new project containing a total of approximately 105 residential units, including 35 townhomes, 66 apartments, and four live/work units (each with about 200 square feet of "commercial" area, or a project total of approximately 800 square feet) at 23755 Newhall Avenue would not generate a sufficient amount of traffic to significantly impact any of the five signalized intersections analyzed in detail in this study under either the existing (year 2021) or forecast future (year 2023) conditions.

Additionally, the proposed project will provide adequate on-site vehicular parking to meet the applicable City of Santa Clarita requirements, and as a result, no off-site project-related parking "spillover" or other parking-related impacts to any nearby residential or commercial parking areas due to insufficient on-site parking are expected. Further, the proposed project will not result in significant impacts on any arterial monitoring intersections or freeway mainline segments in the immediate vicinity. Finally, the potential use of public transit by project residents is anticipated to be relatively nominal, and is not anticipated to adversely affect the existing (or future) bus capacity or other transit-related operations in or near the project vicinity.

Therefore, based on the detailed analyses summarized in this study, no project-related traffic, access, parking, or public transit mitigation measures are warranted.

APPENDICES

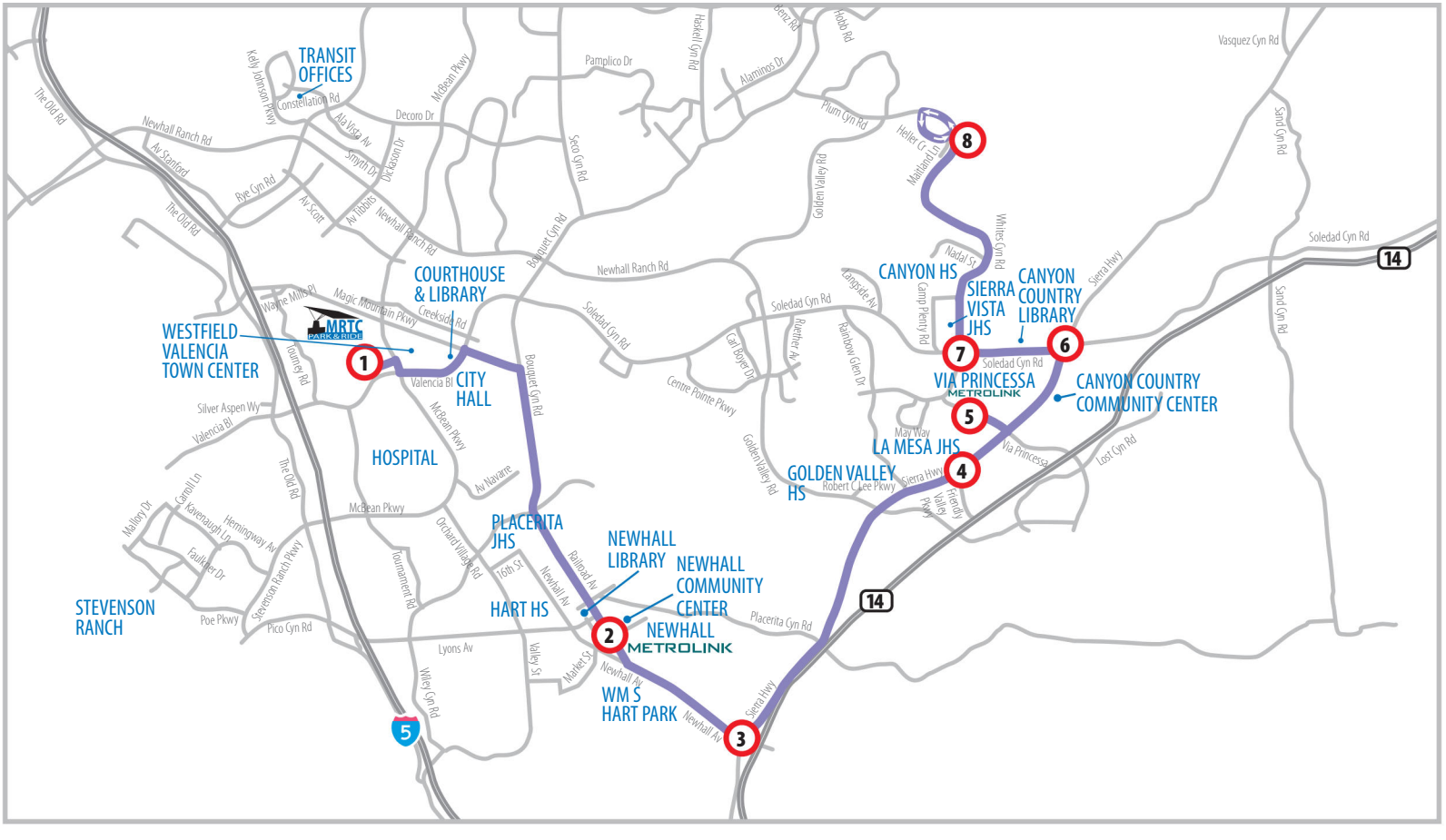
APPENDIX A
PROJECT-SERVING BUS ROUTE MAPS AND SCHEDULES

Santa Clarita Transit Local Route 12

ROUTE 12

SERVING:

- McBean Regional Transit Center
- Westfield Valencia Town Center
- Valencia Library & Courthouse
- Santa Clarita City Hall
- Newhall Library
- Newhall Metrolink Station
- Newhall Community Center
- Wm S Hart Park
- Via Princessa Metrolink
- Canyon High School
- Canyon Country Community Center
- Canyon Country Library



MRTC PARK & RIDE McBean Regional Transit Center (1) Key Bus Stop Route 12

Please note: There are more bus stops than appear on map and schedule. Buses stop at all stops located along the route if customer is waiting to board or needs to depart.

ROUTE 12 MONDAY - FRIDAY: To and from Whites Canyon

ROUTE	Heller Circle & Maitland Ln	Soledad Canyon Rd & Whites Canyon Rd	Soledad Canyon Rd & Sierra Hwy	Via Princessa Metrolink Station	Sierra Hwy & Friendly Valley Pkwy	Sierra Hwy & Newhall Av	Newhall Metrolink Station	McBean Regional Transit Center		Railroad Av & 6th St	Sierra Hwy & Newhall Av	Sierra Hwy & Friendly Valley Pkwy	Via Princessa Metrolink Station	Soledad Canyon Rd & Sierra Hwy	Soledad Cyn Rd & Whites Canyon Rd	Heller Circle & Maitland Ln
	8	7	6	5	4	3	2	ARRIVE 1	DEPART	2	3	4	5	6	7	8
12									604A	618A	624A	631A		639A	643A	653A
12	515A	525A	529A	533A	539A	546A	553A	609A	619A	633A	639A	646A		654A	658A	708A
12	540A	550A	554A	558A	604A	611A	618A	634A	644A	658A	704A	711A		719A	723A	733A
12	614A	624A	628A		634A	641A	648A	704A	714A	728A	734A	741A		749A	753A	803A
12	638A	648A	652A		658A	705A	712A	728A	738A	752A	758A	805A		813A	817A	827A
12	653A	703A	707A		713A	720A	727A	742A	752A	806A	812A	819A		827A	831A	841A
12	708A	718A	722A		728A	735A	742A	757A	807A	821A	827A	834A		842A	846A	856A
12	733A	743A	747A		753A	800A	807A	822A	832A	846A	852A	859A		907A	911A	921A
12	803A	813A	817A		823A	830A	837A	852A	902A	918A	924A	931A		939A	943A	953A
12	827A	837A	841A		847A	854A	901A	916A	926A	942A	948A	955A		1003A	1007A	1017A
12	856A	906A	910A		916A	923A	930A	946A	956A	1012A	1018A	1025A		1033A	1037A	1047A
12	921A	931A	935A		941A	948A	955A	1011A	1021A	1037A	1043A	1050A		1058A	1102A	1112A
12	953A	1003A	1007A		1013A	1020A	1027A	1043A	1053A	1109A	1115A	1122A		1130A	1134A	1144A
12	1017A	1027A	1031A		1037A	1044A	1051A	1107A	1117A	1133A	1139A	1146A		1154A	1158A	**1208P**
12	1047A	1057A	1101A		1107A	1114A	1121A	1137A	1147A	**1203P**	**1209P**	**1216P**		**1224P**	**1228P**	**1238P**
12	1112A	1122A	1126A		1132A	1139A	**1146A**	**1202P**	**1212P**	**1228P**	**1234P**	**1241P**		**1249P**	**1253P**	**103P**
12	1144A	1154A	1158A		**1204P**	**1211P**	**1218P**	**1234P**	**1244P**	**100P**	**106P**	**113P**		**121P**	**125P**	**135P**
12									**1254P**	**110P**	**116P**	**123P**		**131P**	**135P**	**145P**
12	**1208P**	**1218P**	**1222P**		**1228P**	**1235P**	**1242P**	**1258P**	**108P**	**124P**	**130P**	**137P**		**145P**	**149P**	**159P**
12	**1238P**	**1248P**	**1252P**		**1258P**	**105P**	**112P**	**128P**	**138P**	**154P**	**200P**	**207P**		**215P**	**219P**	**229P**
12	**103P**	**113P**	**117P**		**123P**	**130P**	**137P**	**153P**	**203P**	**219P**	**225P**	**232P**		**240P**	**244P**	**254P**
12	**135P**	**145P**	**149P**		**155P**	**202P**	**209P**	**225P**	**235P**	**251P**	**257P**	**304P**		**312P**	**316P**	**326P**
12	**145P**	**155P**	**159P**		**205P**	**212P**	**219P**	**235P**	**245P**	**301P**	**307P**	**314P**		**322P**	**326P**	**336P**
12	**159P**	**209P**	**213P**		**219P**	**226P**	**233P**	**249P**	**259P**	**315P**	**321P**	**328P**		**336P**	**340P**	**350P**
12	**229P**	**239P**	**243P**		**249P**	**256P**	**303P**	**319P**	**329P**	**345P**	**351P**	**358P**		**406P**	**410P**	**420P**
12	**254P**	**304P**	**308P**		**314P**	**321P**	**328P**	**344P**	**354P**	**410P**	**416P**	**423P**		**431P**	**435P**	**445P**
12	**326P**	**336P**	**340P**		**346P**	**353P**	**400P**	**416P**	**426P**	**442P**	**448P**	**455P**		**503P**	**507P**	**517P**
12	**336P**	**346P**	**350P**		**356P**	**403P**	**410P**	**426P**	**436P**	**452P**	**458P**	**505P**		**513P**	**517P**	**527P**
12	**350P**	**400P**	**404P**		**410P**	**417P**	**424P**	**440P**	**450P**	**506P**	**512P**	**519P**		**527P**	**531P**	**541P**
12	**420P**	**430P**	**434P**		**440P**	**447P**	**454P**	**510P**	**520P**	**536P**	**542P**	**549P**		**557P**	**601P**	**611P**
12	**445P**	**455P**	**459P**		**505P**	**512P**	**519P**	**535P**	**545P**	**601P**	**607P**	**614P**	**621P**	**622P**	**626P**	**636P**
12	**517P**	**527P**	**531P**		**537P**	**544P**	**551P**	**607P**	**617P**	**633P**	**639P**	**646P**		**654P**	**658P**	**708P**
12	**541P**	**551P**	**555P**	**559P**	**605P**	**612P**	**619P**	**635P**	**641P**	**657P**	**703P**	**710P**		**718P**	**722P**	**732P**
12	**611P**	**621P**	**625P**		**631P**	**638P**	**645P**	**659P**	**709P**	**723P**	**729P**	**736P**		**744P**	**748P**	**758P**
12	**636P**	**646P**	**650P**		**656P**	**703P**	**710P**	**724P**	**734P**	**748P**	**754P**	**801P**		**809P**	**813P**	**823P**
12	**708P**	**718P**	**722P**		**728P**	**735P**	**742P**	**756P**	**806P**	**820P**	**826P**	**833P**		**841P**	**845P**	**855P**
12	**732P**	**742P**	**746P**		**752P**	**759P**	**806P**	**820P**	**830P**	**844P**	**850P**	**857P**		**905P**	**909P**	**919P**
12	**758P**	**808P**	**812P**		**818P**	**825P**	**832P**	**846P**	**848P**	**901P**	**907P**	**914P**		**922P**	**926P**	**936P**

PM = BOLD

ROUTE 12 SATURDAY - SUNDAY: To Whites Canyon

ROUTE	Heller Circle & Maitland Ln	Soledad Canyon Rd & Whites Canyon Rd	Soledad Canyon Rd & Sierra Hwy	Sierra Hwy & Friendly Valley Pkwy	Sierra Hwy & Newhall Av	Newhall Metrolink Station	McBean Regional Transit Center		Railroad Av & 6th St	Sierra Hwy & Newhall Av	Sierra Hwy & Friendly Valley Pkwy	Soledad Canyon Rd & Sierra Hwy	Soledad Cyn Rd & Whites Canyon Rd	Heller Circle & Maitland Ln
	8	7	6	4	3	2	ARRIVE 1	DEPART	2	3	4	6	7	8
12								644A	658A	704A	711A	719A	723A	733A
12								714A	728A	734A	741A	749A	753A	803A
12	638A	648A	652A	658A	705A	712A	728A	738A	752A	758A	805A	813A	817A	827A
12	708A	718A	722A	728A	735A	742A	757A	807A	821A	827A	834A	842A	846A	856A
12	733A	743A	747A	753A	800A	807A	822A	832A	846A	852A	859A	907A	911A	921A
12	803A	813A	817A	823A	830A	837A	852A	902A	918A	924A	931A	939A	943A	953A
12	827A	837A	841A	847A	854A	901A	916A	926A	942A	948A	955A	1003A	1007A	1017A
12	856A	906A	910A	916A	923A	930A	946A	956A	1012A	1018A	1025A	1033A	1037A	1047A
12	921A	931A	935A	941A	948A	955A	1011A	1021A	1037A	1043A	1050A	1058A	1102A	1112A
12	953A	1003A	1007A	1013A	1020A	1027A	1043A	1053A	1109A	1115A	1122A	1130A	1134A	1144A
12	1017A	1027A	1031A	1037A	1044A	1051A	1107A	1117A	1133A	1139A	1146A	1154A	1158A	**1208P**
12	1047A	1057A	1101A	1107A	1114A	1121A	1137A	1147A	**1203P**	**1209P**	**1216P**	**1224P**	**1228P**	**1238P**
12	1112A	1122A	1126A	1132A	1139A	1146A	**1202P**	**1212P**	**1228P**	**1234P**	**1241P**	**1249P**	**1253P**	**103P**
12	1144A	1154A	1158A	**1204P**	**1211P**	**1218P**	**1234P**	**1244P**	**100P**	**106P**	**113P**	**121P**	**125P**	**135P**
12	**1208P**	**1218P**	**1222P**	**1228P**	**1235P**	**1242P**	**1258P**	**108P**	**124P**	**130P**	**137P**	**145P**	**149P**	**159P**
12	**1238P**	**1248P**	**1252P**	**1258P**	**105P**	**112P**	**128P**	**138P**	**154P**	**200P**	**207P**	**215P**	**219P**	**229P**
12	**103P**	**113P**	**117P**	**123P**	**130P**	**137P**	**153P**	**203P**	**219P**	**225P**	**232P**	**240P**	**244P**	**254P**
12	**135P**	**145P**	**149P**	**155P**	**202P**	**209P**	**225P**	**235P**	**251P**	**257P**	**304P**	**312P**	**316P**	**326P**
12	**159P**	**209P**	**213P**	**219P**	**226P**	**233P**	**249P**	**259P**	**315P**	**321P**	**328P**	**336P**	**340P**	**350P**
12	**229P**	**239P**	**243P**	**249P**	**256P**	**303P**	**319P**	**329P**	**345P**	**351P**	**358P**	**406P**	**410P**	**420P**
12	**254P**	**304P**	**308P**	**314P**	**321P**	**328P**	**344P**	**354P**	**410P**	**416P**	**423P**	**431P**	**435P**	**445P**
12	**326P**	**336P**	**340P**	**346P**	**353P**	**400P**	**416P**	**426P**	**442P**	**448P**	**455P**	**503P**	**507P**	**517P**
12	**350P**	**400P**	**404P**	**410P**	**417P**	**424P**	**440P**	**450P**	**506P**	**512P**	**519P**	**527P**	**531P**	**541P**
12	**420P**	**430P**	**434P**	**440P**	**447P**	**454P**	**510P**	**520P**	**536P**	**542P**	**549P**	**557P**	**601P**	**611P**
12	**445P**	**455P**	**459P**	**505P**	**512P**	**519P**	**535P**	**545P**	**601P**	**607P**	**614P**	**622P**	**626P**	**636P**
12	**517P**	**527P**	**531P**	**537P**	**544P**	**551P**	**607P**	**617P**	**633P**	**639P**	**646P**	**654P**	**658P**	**708P**
12	**541P**	**551P**	**555P**	**601P**	**608P**	**615P**	**631P**	**641P**	**657P**	**703P**	**710P**	**718P**	**722P**	**732P**
12	**611P**	**621P**	**625P**	**631P**	**638P**	**645P**	**659P**	**709P**	**723P**	**729P**	**736P**	**744P**	**748P**	**758P**
12	**636P**	**646P**	**650P**	**656P**	**703P**	**710P**	**724P**	**734P**	**748P**	**754P**	**801P**	**809P**	**813P**	**823P**
12	**708P**	**718P**	**722P**	**728P**	**735P**	**742P**	**756P**	**806P**	**820P**	**826P**	**833P**	**841P**	**845P**	**855P**
12	**732P**	**742P**	**746P**	**752P**	**759P**	**806P**	**820P**	**830P**	**844P**	**850P**	**857P**	**905P**	**909P**	**919P**
12	**758P**	**808P**	**812P**	**818P**	**825P**	**832P**	**846P**	**848P**	**901P**	**907P**	**914P**	**922P**	**926P**	**936P**

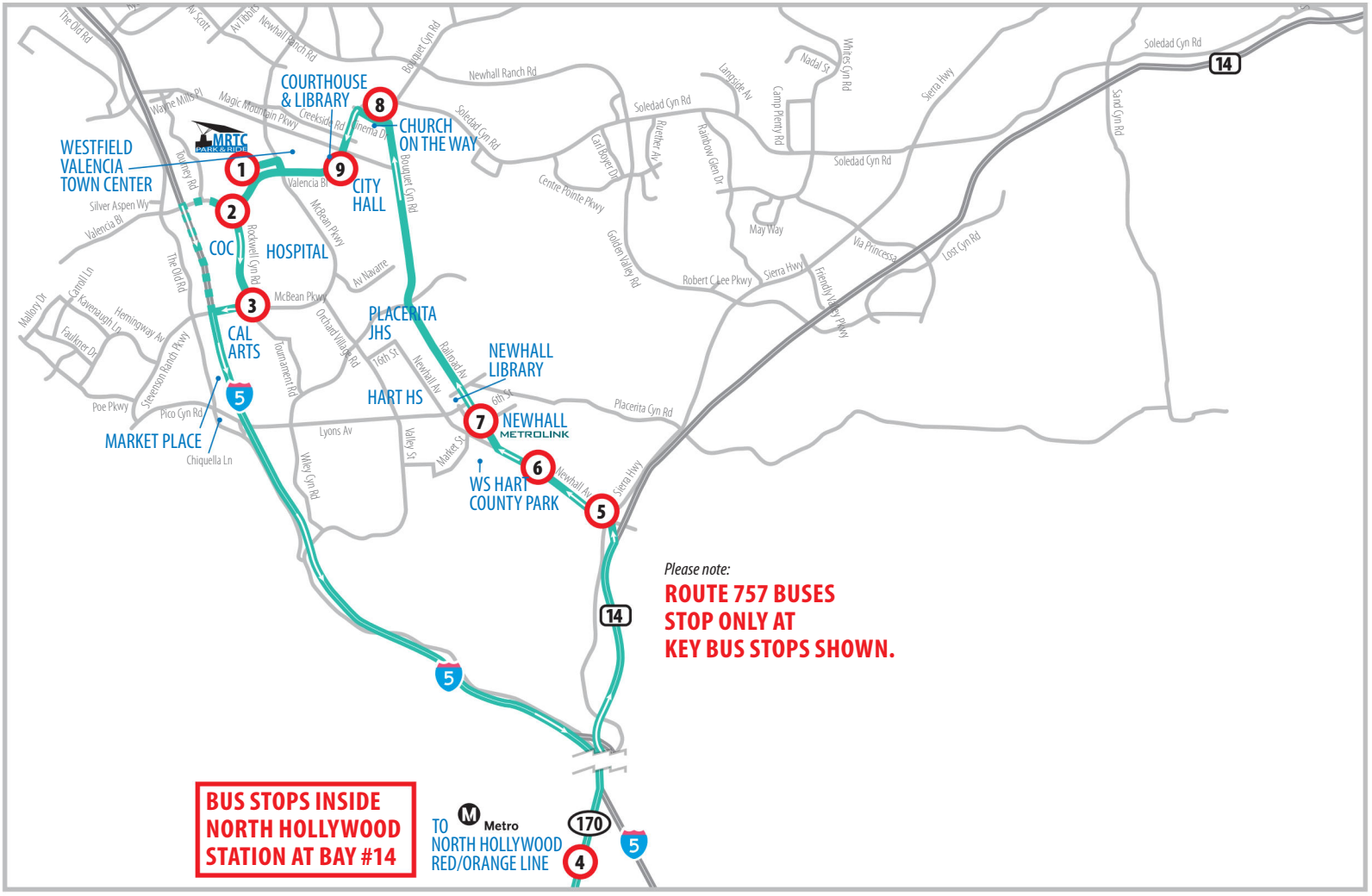
PM = BOLD **SUNDAY SERVICE IN RED BRACKET**

Santa Clarita Transit Route 757 “NoHo Express”

ROUTE 757 NoHo Express

SERVING:

- Sierra Highway
- Newhall Metrolink Station
- Church on the Way
- McBean Regional Transit Center
- College of the Canyons (Valencia Campus)
- CalArts
- North Hollywood Red/Orange Line



MRTC PARK & RIDE McBean Regional Transit Center (1) Key Bus Stop Route 757 See Schedule for trips not serving College of the Canyons (COC).

ROUTE 757 MONDAY - FRIDAY: Noho Express - Santa Clarita to North Hollywood Station and Return

ROUTE	McBean Regional Transit Center	College of the Canyons	CalArts	North Hollywood Station		Newhall Av & Sierra Hwy	Newhall Av & Valle Del Oro	Newhall Metrolink Station	Cinema Dr & Academy Pl	Valencia Bl & Citrus St	McBean Regional Transit Center
				ARRIVE	DEPART						
	1	2	3	4		5	6	7	8	9	1
757	533A			600A	610A	637A	638A	641A	647A	653A	655A
757	700A	702A	704A	744A	754A	819A	820A	823A	829A	835A	837A
757	803A	805A	807A	840A	850A	915A	916A	919A	925A	931A	933A
757	842A	844A	846A	913A	919A	945A	946A	949A	955A	1001A	1003A
757	1008A			1035A	1045A	1112A	1113A	1116A	1122A	1128A	1130A
757	1103A			1130A	1140A	**1208P**	**1209P**	**1212P**	**1218P**	**1224P**	**1226P**
757	1135A			**1202P**	**1212P**	**1239P**	**1240P**	**1243P**	**1249P**	**1255P**	**1257P**
757	**1231P**	**1233P**	**1235P**	**102P**	**112P**	**139P**	**140P**	**143P**	**149P**	**155P**	**157P**
757	**102P**	**104P**	**106P**	**133P**	**143P**	**210P**	**211P**	**214P**	**220P**	**226P**	**228P**
757	**202P**	**204P**	**206P**	**233P**	**243P**	**310P**	**311P**	**314P**	**320P**	**326P**	**328P**
757	**233P**	**235P**	**237P**	**304P**	**314P**	**341P**	**342P**	**345P**	**351P**	**357P**	**359P**
757	**333P**	**335P**	**337P**	**410P**	**420P**	**447P**	**448P**	**451P**	**457P**	**503P**	**505P**
757	**404P**	**406P**	**408P**	**448P**	**458P**	**525P**	**526P**	**529P**	**535P**	**541P**	**543P**
757	**430P**	**432P**	**434P**	**514P**	**524P**	**555P**	**556P**	**559P**	**605P**	**611P**	**613P**
757	**510P**	**512P**	**514P**	**547P**	**557P**	**624P**	**625P**	**628P**	**634P**	**640P**	**642P**
757	**548P**	**550P**	**552P**	**625P**	**635P**	**702P**	**703P**	**706P**	**712P**	**718P**	**720P**
757	**618P**	**620P**	**622P**	**655P**	**705P**	**732P**	**733P**	**736P**	**742P**	**748P**	**750P**
757	**647P**	**649P**	**651P**	**724P**	**734P**	**759P**	**800P**	**803P**	**809P**	**815P**	**817P**

PM = BOLD

ROUTE 757 SATURDAY - SUNDAY: Noho Express - Santa Clarita to North Hollywood Station and Return

ROUTE	McBean Regional Transit Center Park & Ride	North Hollywood Station	North Hollywood Station	McBean Regional Transit Center Park & Ride
	DEPART	ARRIVE	DEPART	ARRIVE
	1	4	4	1
757	720A	750A	755A	825A
757	835A	905A	910A	940A
757	950A	1020A	1025A	1055A
757	1104A	1134A	1139A	**1209P**
757	**1218P**	**1248P**	**1253P**	**123P**
757	**132P**	**202P**	**207P**	**237P**
757	**246P**	**316P**	**321P**	**351P**
757	**400P**	**430P**	**435P**	**505P**
757	**514P**	**544P**	**549P**	**619P**
757	**630P**	**705P**	**715P**	**745P**

PM = BOLD

APPENDIX B

INTERSECTION GEOMETRICS/CONTROLS AND TRAFFIC COUNT DATA SHEETS

Intersection Geometrics and Controls

23755 NEWHALL AVENUE APTS (SANTA CLARITA) \ LANE CONFIGS

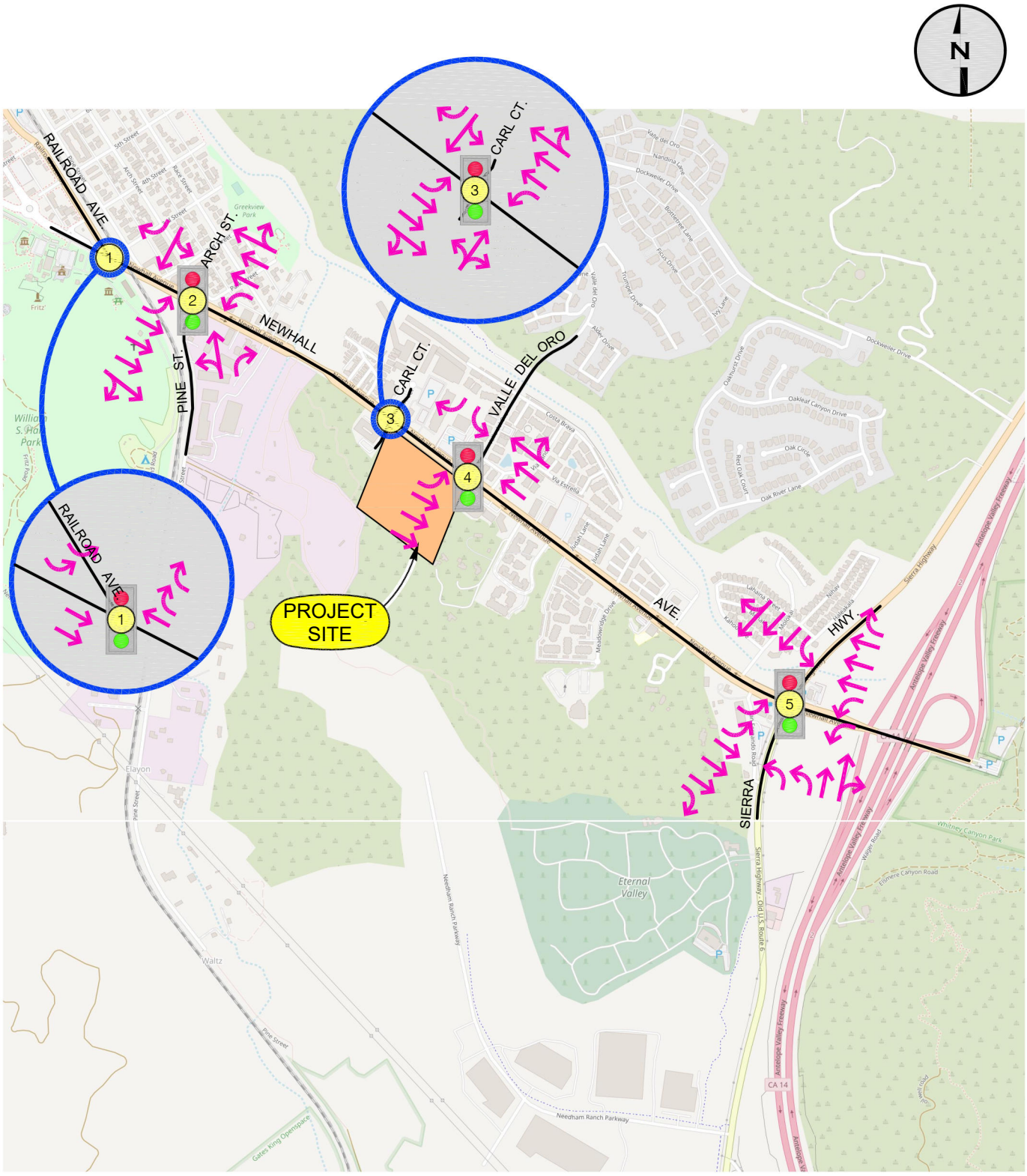


FIGURE B-1

STUDY INTERSECTION CONTROLS AND LANE CONFIGURATIONS

Hirsch/Green Transportation Consulting, Inc.

4/9/2021

Intersection Counts

Intersection #1 – Newhall Avenue and Railroad Avenue

145 SC TUE - TMC
Tue Jan 29, 2019
Full Length (6 AM-10 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618762, Location: 34.375596, -118.524225

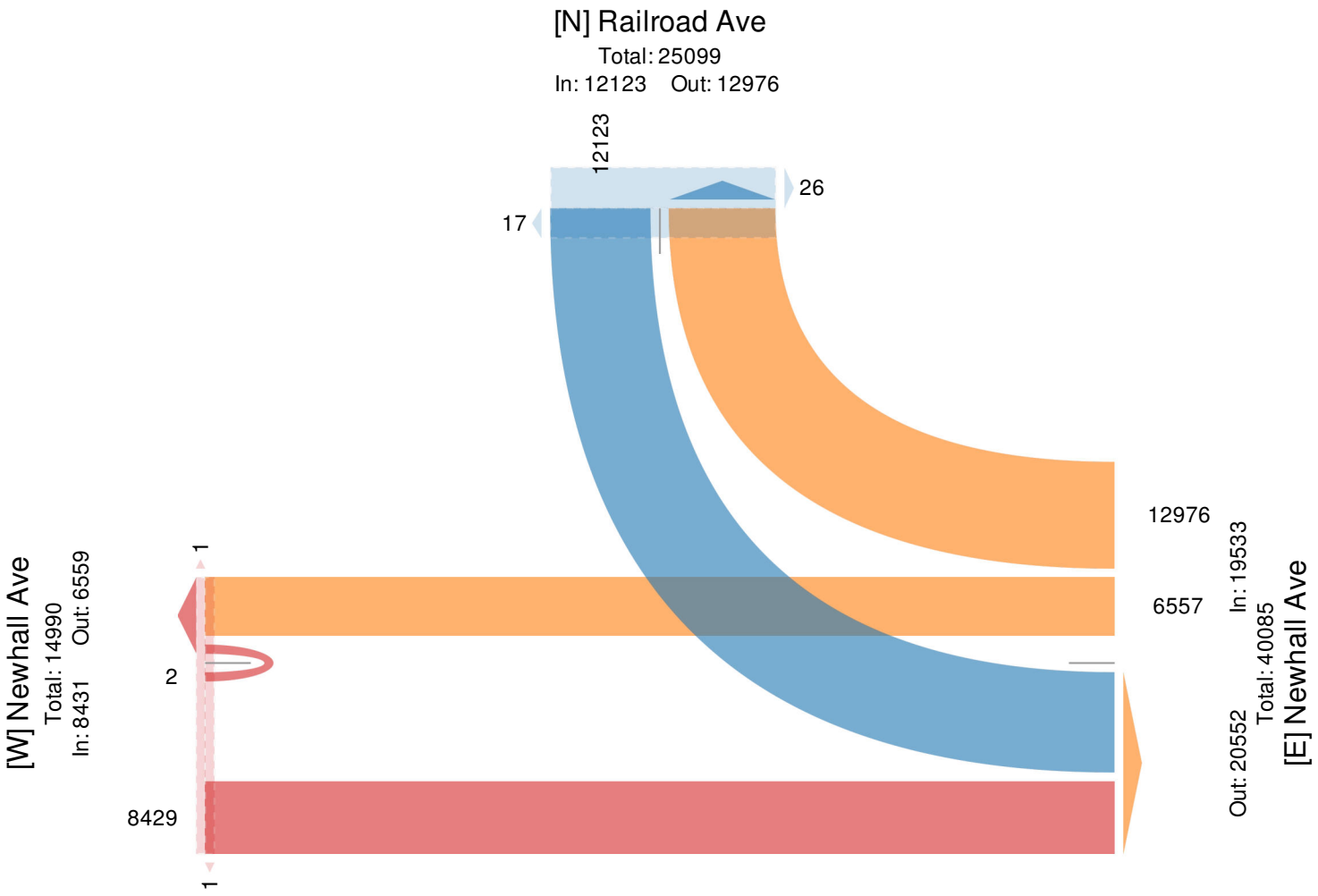
Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US

Leg Direction	Railroad Ave Southbound					Newhall Ave Westbound					Newhall Ave Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2019-01-29 6:00AM	0	1043	0	**1043**	2	519	178	0	**697**	0	387	0	0	**387**	0	**2127**
7:00AM	0	1094	0	**1094**	6	1056	424	0	**1480**	0	542	0	0	**542**	0	**3116**
8:00AM	0	976	0	**976**	1	925	468	0	**1393**	0	510	0	0	**510**	0	**2879**
9:00AM	0	707	0	**707**	3	737	453	0	**1190**	0	446	0	0	**446**	1	**2343**
10:00AM	0	670	0	**670**	2	697	466	0	**1163**	0	447	0	1	**448**	0	**2281**
11:00AM	0	631	0	**631**	0	727	444	0	**1171**	0	517	0	0	**517**	0	**2319**
12:00PM	0	709	0	**709**	1	739	435	0	**1174**	0	543	0	0	**543**	0	**2426**
1:00PM	0	651	0	**651**	1	773	478	0	**1251**	0	538	0	0	**538**	0	**2440**
2:00PM	0	733	0	**733**	6	968	523	0	**1491**	0	584	0	0	**584**	1	**2808**
3:00PM	0	860	0	**860**	10	1146	554	0	**1700**	0	736	0	1	**737**	0	**3297**
4:00PM	0	1016	0	**1016**	4	1096	464	0	**1560**	0	695	0	0	**695**	0	**3271**
5:00PM	0	1015	0	**1015**	5	948	453	0	**1401**	0	811	0	0	**811**	0	**3227**
6:00PM	0	715	0	**715**	0	986	445	0	**1431**	0	575	0	0	**575**	0	**2721**
7:00PM	0	494	0	**494**	0	750	340	0	**1090**	0	437	0	0	**437**	0	**2021**
8:00PM	0	419	0	**419**	0	514	240	0	**754**	0	346	0	0	**346**	0	**1519**
9:00PM	0	390	0	**390**	2	395	192	0	**587**	0	315	0	0	**315**	0	**1292**
Total	0	12123	0	**12123**	43	12976	6557	0	**19533**	0	8429	0	2	**8431**	2	**40087**
% Approach	0%	100%	0%	**-**	-	66.4%	33.6%	0%	**-**	-	100.0%	0%	0%	**-**	-	-
% Total	0%	30.2%	0%	**30.2%**	-	32.4%	16.4%	0%	**48.7%**	-	21.0%	0%	0%	**21.0%**	-	-
Lights and Motorcycles	0	11680	0	**11680**	-	12424	6484	0	**18908**	-	8317	0	2	**8319**	-	38907
% Lights and Motorcycles	0%	96.3%	0%	**96.3%**	-	95.7%	98.9%	0%	**96.8%**	-	98.7%	0%	100%	**98.7%**	-	97.1%
Heavy	0	442	0	**442**	-	550	68	0	**618**	-	109	0	0	**109**	-	1169
% Heavy	0%	3.6%	0%	**3.6%**	-	4.2%	1.0%	0%	**3.2%**	-	1.3%	0%	0%	**1.3%**	-	2.9%
Bicycles on Road	0	1	0	**1**	-	2	5	0	**7**	-	3	0	0	**3**	-	11
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0.1%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	40	-	-	-	-	0	-	-	-	-	2	
% Pedestrians	-	-	-	-	93.0%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	7.0%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

145 SC TUE - TMC
Tue Jan 29, 2019
Full Length (6 AM-10 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618762, Location: 34.375596, -118.524225

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



145 SC TUE - TMC
Tue Jan 29, 2019
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618762, Location: 34.375596, -118.524225

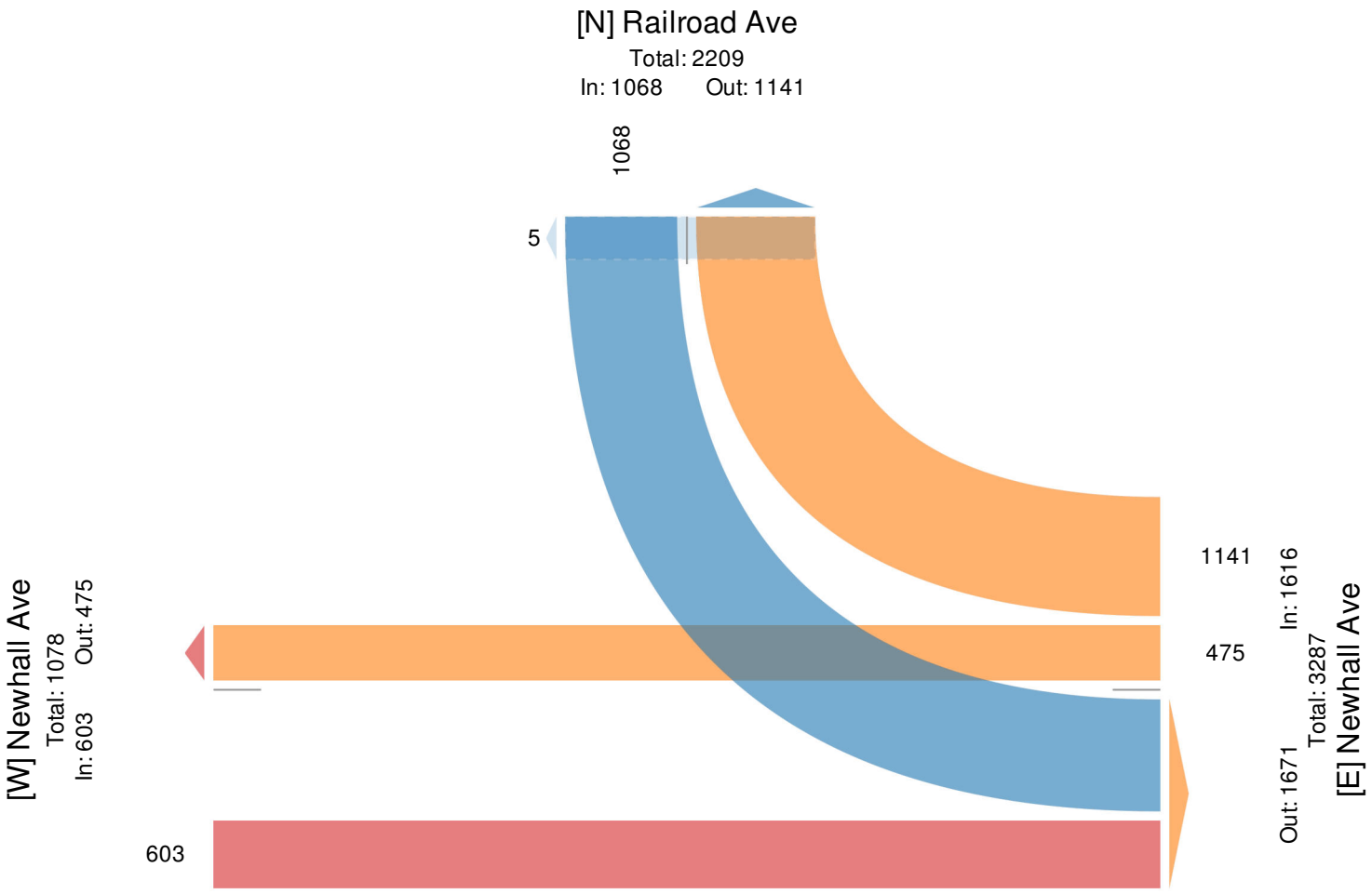
Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US

Leg / Direction	Railroad Ave Southbound					Newhall Ave Westbound					Newhall Ave Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2019-01-29 7:15AM	0	320	0	**320**	3	195	104	0	**299**	0	138	0	0	**138**	0	**757**
7:30AM	0	228	0	**228**	2	354	129	0	**483**	0	140	0	0	**140**	0	**851**
7:45AM	0	237	0	**237**	0	340	147	0	**487**	0	161	0	0	**161**	0	**885**
8:00AM	0	283	0	**283**	0	252	95	0	**347**	0	164	0	0	**164**	0	**794**
Total	0	1068	0	**1068**	5	1141	475	0	**1616**	0	603	0	0	**603**	0	**3287**
% Approach	0%	100%	0%	**-**	-	70.6%	29.4%	0%	**-**	-	100%	0%	0%	**-**	-	-
% Total	0%	32.5%	0%	**32.5%**	-	34.7%	14.5%	0%	**49.2%**	-	18.3%	0%	0%	**18.3%**	-	-
PHF	-	0.834	-	**0.834**	-	0.805	0.808	-	**0.829**	-	0.919	-	-	**0.919**	-	0.928
Lights and Motorcycles	0	1028	0	**1028**	-	1097	466	0	**1563**	-	596	0	0	**596**	-	3187
% Lights and Motorcycles	0%	96.3%	0%	**96.3%**	-	96.1%	98.1%	0%	**96.7%**	-	98.8%	0%	0%	**98.8%**	-	97.0%
Heavy	0	40	0	**40**	-	43	9	0	**52**	-	7	0	0	**7**	-	99
% Heavy	0%	3.7%	0%	**3.7%**	-	3.8%	1.9%	0%	**3.2%**	-	1.2%	0%	0%	**1.2%**	-	3.0%
Bicycles on Road	0	0	0	**0**	-	1	0	0	**1**	-	0	0	0	**0**	-	1
% Bicycles on Road	0%	0%	0%	**0%**	-	0.1%	0%	0%	**0.1%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	5	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

145 SC TUE - TMC
Tue Jan 29, 2019
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618762, Location: 34.375596, -118.524225

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



145 SC TUE - TMC
Tue Jan 29, 2019
PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618762, Location: 34.375596, -118.524225

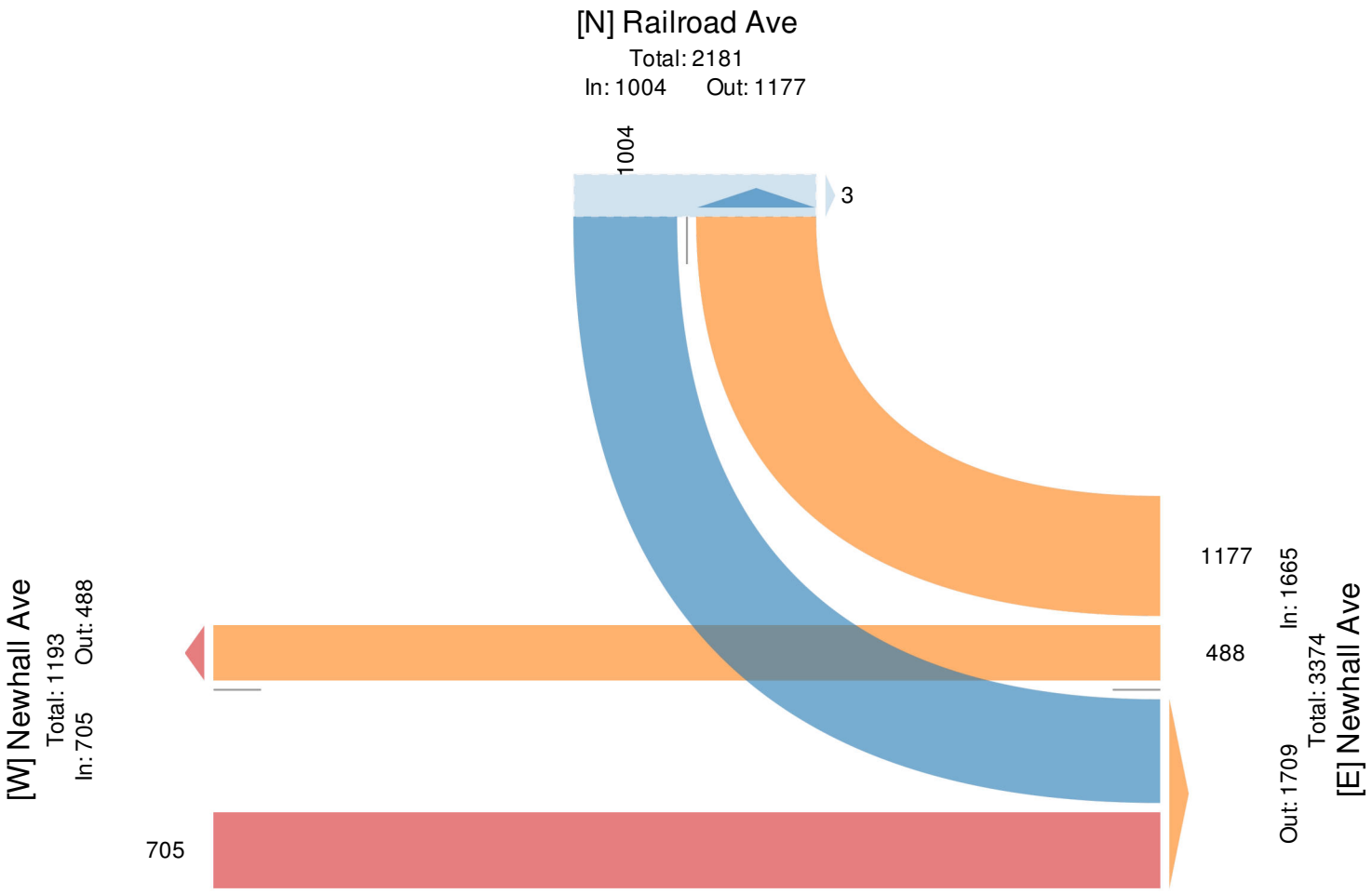
Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US

Leg / Direction	Railroad Ave Southbound					Newhall Ave Westbound					Newhall Ave Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2019-01-29 3:45PM	0	225	0	**225**	1	337	150	0	**487**	0	192	0	0	**192**	0	**904**
4:00PM	0	250	0	**250**	1	261	104	0	**365**	0	188	0	0	**188**	0	**803**
4:15PM	0	277	0	**277**	1	263	119	0	**382**	0	159	0	0	**159**	0	**818**
4:30PM	0	252	0	**252**	0	316	115	0	**431**	0	166	0	0	**166**	0	**849**
Total	0	1004	0	**1004**	3	1177	488	0	**1665**	0	705	0	0	**705**	0	**3374**
% Approach	0%	100%	0%	-	-	70.7%	29.3%	0%	-	-	100%	0%	0%	-	-	-
% Total	0%	29.8%	0%	**29.8%**	-	34.9%	14.5%	0%	**49.3%**	-	20.9%	0%	0%	**20.9%**	-	-
PHF	-	0.906	-	**0.906**	-	0.873	0.813	-	**0.855**	-	0.917	-	-	**0.917**	-	0.933
Lights and Motorcycles	0	973	0	**973**	-	1145	486	0	**1631**	-	699	0	0	**699**	-	3303
% Lights and Motorcycles	0%	96.9%	0%	**96.9%**	-	97.3%	99.6%	0%	**98.0%**	-	99.1%	0%	0%	**99.1%**	-	97.9%
Heavy	0	31	0	**31**	-	32	2	0	**34**	-	5	0	0	**5**	-	70
% Heavy	0%	3.1%	0%	**3.1%**	-	2.7%	0.4%	0%	**2.0%**	-	0.7%	0%	0%	**0.7%**	-	2.1%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	1	0	0	**1**	-	1
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0.1%	0%	0%	**0.1%**	-	0%
Pedestrians	-	-	-	-	2	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	66.7%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	33.3%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

145 SC TUE - TMC
Tue Jan 29, 2019
PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618762, Location: 34.375596, -118.524225

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



Intersection #2 – Newhall Avenue and Pine Street/Arch Street

City of Santa Clarita (CA)
23920 Valencia Blvd.

Santa Clarita, California, United States 12345
(661) 286-4002 cromo@santa-clarita.com

Count Name: Newhall Avenue and Pine Street TMC
Site Code:
Start Date: 08/27/2015

Turning Movement Data

Start Time	Arch Street Southbound							Newhall Avenue Westbound						Pine Street Northbound							Newhall Avenue Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	1	2	2	31	0	0	36	3	98	10	2	0	113	3	4	0	0	0	0	7	2	0	297	4	1	0	304	460
6:15 AM	3	1	0	26	1	0	31	6	132	7	5	0	150	1	2	1	7	0	3	11	5	1	323	9	1	0	339	531
6:30 AM	0	0	0	27	0	0	27	8	193	9	2	0	212	2	0	0	7	0	1	9	6	1	388	6	3	0	404	652
6:45 AM	0	2	1	29	0	0	32	9	255	20	4	0	288	0	3	0	5	0	0	8	17	2	396	4	4	0	423	751
Hourly Total	4	5	3	113	1	0	126	26	678	46	13	0	763	6	9	1	19	0	4	35	30	4	1404	23	9	0	1470	2394
7:00 AM	1	1	0	23	0	0	25	6	208	8	1	2	223	0	3	1	4	0	0	8	11	2	359	6	1	0	379	635
7:15 AM	0	5	0	21	0	0	26	10	270	5	3	1	288	1	3	0	5	0	0	9	5	1	327	4	2	1	339	662
7:30 AM	2	6	1	18	0	0	27	3	401	3	1	0	408	3	2	0	3	0	0	8	8	1	382	1	0	1	392	835
7:45 AM	3	2	1	23	0	0	29	7	381	7	6	0	401	3	3	1	12	0	0	19	10	0	361	5	4	1	380	829
Hourly Total	6	14	2	85	0	0	107	26	1260	23	11	3	1320	7	11	2	24	0	0	44	34	4	1429	16	7	3	1490	2961
8:00 AM	4	1	0	18	0	0	23	13	302	8	4	0	327	3	1	1	5	0	0	10	7	0	421	11	8	0	447	807
8:15 AM	3	3	1	17	0	0	24	4	293	7	2	0	306	3	0	0	3	0	0	6	8	0	332	5	2	0	347	683
8:30 AM	0	3	1	21	0	0	25	3	290	3	4	0	300	2	2	0	7	0	0	11	4	0	306	4	1	0	315	651
8:45 AM	1	3	1	15	0	0	20	4	340	4	4	0	352	2	2	1	5	0	0	10	6	0	241	1	2	0	250	632
Hourly Total	8	10	3	71	0	0	92	24	1225	22	14	0	1285	10	5	2	20	0	0	37	25	0	1300	21	13	0	1359	2773
9:00 AM	2	1	0	13	0	0	16	8	275	5	2	0	290	2	5	0	4	0	0	11	7	1	247	2	3	0	260	577
9:15 AM	0	1	0	16	0	0	17	5	246	3	2	0	256	3	5	0	6	0	0	14	5	0	272	7	1	0	285	572
9:30 AM	0	1	1	19	0	0	21	6	272	6	4	0	288	0	5	0	5	0	0	10	3	0	247	4	2	0	256	575
9:45 AM	0	4	0	10	0	0	14	4	258	3	3	0	268	2	4	1	4	0	1	11	6	1	242	1	2	0	252	545
Hourly Total	2	7	1	58	0	0	68	23	1051	17	11	0	1102	7	19	1	19	0	1	46	21	2	1008	14	8	0	1053	2269
10:00 AM	2	4	3	14	0	0	23	8	233	5	6	0	252	1	4	1	6	0	0	12	3	0	219	7	1	0	230	517
10:15 AM	1	1	4	9	0	0	15	8	263	3	3	0	277	1	8	1	5	0	0	15	3	0	280	4	3	5	290	597
10:30 AM	0	2	0	17	0	0	19	2	250	3	3	0	258	1	4	0	3	0	0	8	6	2	239	6	5	0	258	543
10:45 AM	0	1	0	17	0	0	18	1	271	4	6	0	282	0	1	0	5	0	0	6	4	1	230	5	2	0	242	548
Hourly Total	3	8	7	57	0	0	75	19	1017	15	18	0	1069	3	17	2	19	0	0	41	16	3	968	22	11	5	1020	2205
11:00 AM	0	1	0	7	0	0	8	7	235	6	3	0	251	2	3	0	2	0	0	7	9	0	217	3	5	0	234	500
11:15 AM	2	3	1	13	0	0	19	5	265	3	2	0	275	0	4	0	6	0	1	10	6	1	236	9	3	1	255	559
11:30 AM	0	2	1	11	0	0	14	7	254	6	2	0	269	1	0	0	4	0	0	5	8	0	248	3	0	0	259	547
11:45 AM	1	3	0	7	0	0	11	6	235	6	5	0	252	1	2	1	9	0	1	13	7	0	216	12	1	0	236	512
Hourly Total	3	9	2	38	0	0	52	25	989	21	12	0	1047	4	9	1	21	0	2	35	30	1	917	27	9	1	984	2118
12:00 PM	1	3	0	11	0	0	15	5	258	9	2	0	274	5	9	0	11	0	0	25	6	1	277	5	6	2	295	609
12:15 PM	1	0	1	15	0	0	17	4	256	8	3	0	271	0	10	0	4	0	0	14	4	1	303	6	3	1	317	619
12:30 PM	1	2	0	9	0	0	12	6	237	8	1	0	252	0	5	0	8	0	0	13	6	0	267	5	4	1	282	559
12:45 PM	0	2	0	14	0	0	16	5	264	4	1	0	274	2	4	0	8	0	0	14	7	0	261	3	3	0	274	578
Hourly Total	3	7	1	49	0	0	60	20	1015	29	7	0	1071	7	28	0	31	0	0	66	23	2	1108	19	16	4	1168	2365
1:00 PM	1	0	0	9	0	0	10	5	257	5	2	0	269	1	4	0	2	0	2	7	7	0	279	9	2	1	297	583
1:15 PM	5	2	2	18	0	0	27	6	266	5	2	0	279	0	1	0	5	0	0	6	2	0	244	4	3	3	253	565
1:30 PM	0	2	2	21	0	0	25	10	280	8	2	0	300	4	12	2	3	0	0	21	9	0	255	6	4	2	274	620
1:45 PM	6	3	2	11	0	0	22	9	293	10	4	0	316	6	3	1	6	0	1	16	5	2	235	6	0	2	248	602
Hourly Total	12	7	6	59	0	0	84	30	1096	28	10	0	1164	11	20	3	16	0	3	50	23	2	1013	25	9	8	1072	2370

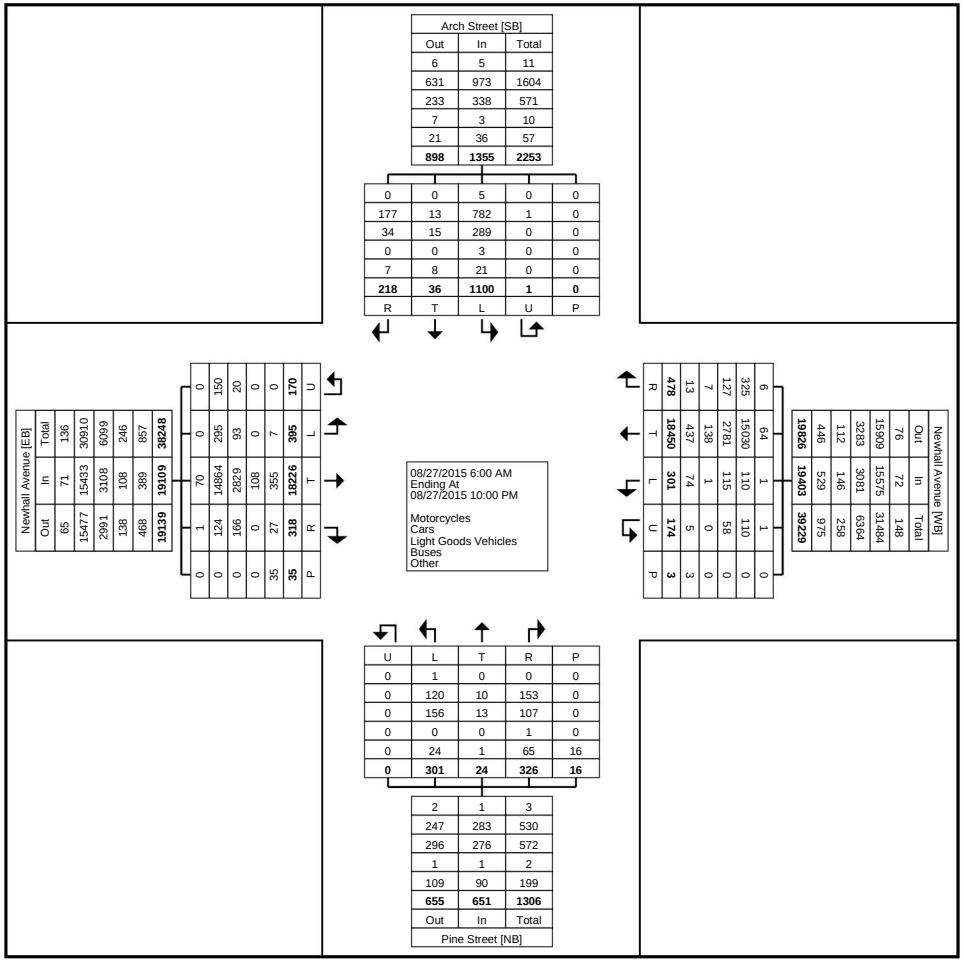
2:00 PM	3	1	2	10	0	0	16	11	305	2	4	0	322	1	2	1	4	0	0	8	11	0	273	3	1	0	288	634
2:15 PM	0	0	0	11	0	0	11	14	300	6	5	0	325	0	7	1	3	0	0	11	4	0	273	9	2	0	288	635
2:30 PM	4	2	1	18	0	0	25	8	343	4	10	0	365	1	12	1	5	0	0	19	3	2	317	9	1	1	332	741
2:45 PM	0	3	0	14	0	0	17	5	335	10	0	0	350	2	5	0	6	0	0	13	5	1	292	7	2	0	307	687
Hourly Total	7	6	3	53	0	0	69	38	1283	22	19	0	1362	4	26	3	18	0	0	51	23	3	1155	28	6	1	1215	2697
3:00 PM	2	0	0	22	0	0	24	13	325	6	5	0	349	2	4	2	3	0	3	11	4	0	340	7	6	5	357	741
3:15 PM	5	2	1	18	0	0	26	11	401	4	2	0	418	0	4	0	4	0	0	8	4	0	296	2	1	0	303	755
3:30 PM	1	3	1	11	0	0	16	6	378	8	4	0	396	4	10	1	8	0	0	23	7	1	334	7	5	0	354	789
3:45 PM	1	3	0	27	0	0	31	11	387	7	5	0	410	1	6	0	9	0	2	16	11	0	344	9	3	3	367	824
Hourly Total	9	8	2	78	0	0	97	41	1491	25	16	0	1573	7	24	3	24	0	5	58	26	1	1314	25	15	8	1381	3109
4:00 PM	2	1	0	13	0	0	16	7	445	7	2	0	461	6	7	1	8	0	0	22	8	0	342	4	4	0	358	857
4:15 PM	2	2	0	16	0	0	20	9	420	2	5	0	436	0	5	0	12	0	0	17	4	1	337	6	2	0	350	823
4:30 PM	2	1	1	21	0	0	25	5	371	3	2	0	381	2	5	1	10	0	0	18	5	0	336	12	3	0	356	780
4:45 PM	6	2	0	21	0	0	29	15	424	6	0	0	445	2	7	1	11	0	0	21	2	0	387	13	1	0	403	898
Hourly Total	12	6	1	71	0	0	90	36	1660	18	9	0	1723	10	24	3	41	0	0	78	19	1	1402	35	10	0	1467	3358
5:00 PM	1	3	0	19	0	0	23	9	389	4	3	0	405	4	18	1	17	0	0	40	3	1	381	5	3	0	393	861
5:15 PM	0	5	1	18	0	0	24	9	414	4	2	0	429	0	5	0	5	0	0	10	2	0	420	3	4	0	429	892
5:30 PM	1	1	0	14	0	0	16	7	404	1	0	0	412	1	6	0	2	0	0	9	0	0	373	7	3	0	383	820
5:45 PM	2	4	0	22	0	0	28	14	394	3	3	0	414	0	2	1	1	0	0	4	2	0	348	4	4	0	358	804
Hourly Total	4	13	1	73	0	0	91	39	1601	12	8	0	1660	5	31	2	25	0	0	63	7	1	1522	19	14	0	1563	3377
6:00 PM	0	1	0	23	0	0	24	5	341	4	2	0	352	0	2	0	4	0	0	6	2	0	332	9	8	0	351	733
6:15 PM	1	1	1	17	0	0	20	12	372	3	3	0	390	0	3	0	3	0	0	6	1	0	328	4	3	0	336	752
6:30 PM	5	3	0	18	0	0	26	11	422	2	1	0	436	1	4	0	3	0	1	8	1	0	301	7	2	2	311	781
6:45 PM	4	2	0	23	0	0	29	16	397	1	0	0	414	0	1	1	1	0	0	3	2	0	287	13	2	0	304	750
Hourly Total	10	7	1	81	0	0	99	44	1532	10	6	0	1592	1	10	1	11	0	1	23	6	0	1248	33	15	2	1302	3016
7:00 PM	0	1	0	24	0	0	25	7	357	0	6	0	370	1	1	0	2	0	0	4	4	0	262	6	3	0	275	674
7:15 PM	1	0	0	21	0	0	22	9	341	3	4	0	357	0	2	0	0	0	0	2	1	0	270	4	3	2	278	659
7:30 PM	1	0	2	15	0	0	18	10	261	0	1	0	272	1	0	0	0	0	0	1	0	0	222	6	1	1	229	520
7:45 PM	4	1	1	18	0	0	24	10	227	2	0	0	239	0	0	0	1	0	0	1	1	0	211	14	0	0	226	490
Hourly Total	6	2	3	78	0	0	89	36	1186	5	11	0	1238	2	3	0	3	0	0	8	6	0	965	30	7	3	1008	2343
8:00 PM	4	0	0	16	0	0	20	5	194	1	1	0	201	1	2	0	2	0	0	5	1	0	269	10	4	0	284	510
8:15 PM	1	0	0	25	0	0	26	8	204	2	3	0	217	0	1	0	1	0	0	2	0	0	200	10	0	0	210	455
8:30 PM	0	3	0	21	0	0	24	5	214	0	1	0	220	0	0	0	1	0	0	1	1	0	175	4	4	0	184	429
8:45 PM	1	6	0	21	0	0	28	9	199	4	0	0	212	1	0	0	1	0	0	2	0	0	158	4	3	0	165	407
Hourly Total	6	9	0	83	0	0	98	27	811	7	5	0	850	2	3	0	5	0	0	10	2	0	802	28	11	0	843	1801
9:00 PM	0	1	0	10	0	0	11	8	155	1	1	0	165	0	1	0	0	0	0	1	0	0	201	7	1	0	209	386
9:15 PM	2	1	0	20	0	0	23	9	136	0	1	0	146	0	0	0	2	0	0	2	2	0	170	6	3	0	181	352
9:30 PM	0	0	0	10	0	0	10	3	144	0	0	0	147	0	0	0	2	0	0	2	1	0	154	8	6	0	169	328
9:45 PM	1	0	0	13	0	0	14	4	120	0	2	0	126	0	0	0	1	0	0	1	0	0	146	9	0	0	155	296
Hourly Total	3	2	0	53	0	0	58	24	555	1	4	0	584	0	1	0	5	0	0	6	3	0	671	30	10	0	714	1362
Grand Total	98	120	36	1100	1	0	1355	478	18450	301	174	3	19403	86	240	24	301	0	16	651	294	24	18226	395	170	35	19109	40518
Approach %	7.2	8.9	2.7	81.2	0.1	-	-	2.5	95.1	1.6	0.9	-	-	13.2	36.9	3.7	46.2	0.0	-	-	1.5	0.1	95.4	2.1	0.9	-	-	-
Total %	0.2	0.3	0.1	2.7	0.0	-	3.3	1.2	45.5	0.7	0.4	-	47.9	0.2	0.6	0.1	0.7	0.0	-	1.6	0.7	0.1	45.0	1.0	0.4	-	47.2	-
Motorcycles	0	0	0	5	0	-	5	6	64	1	1	-	72	0	0	0	1	0	-	1	1	0	70	0	0	-	71	149
% Motorcycles	0.0	0.0	0.0	0.5	0.0	-	0.4	1.3	0.3	0.3	0.6	-	0.4	0.0	0.0	0.0	0.3	-	-	0.2	0.3	0.0	0.4	0.0	0.0	-	0.4	0.4
Cars	85	92	13	782	1	-	973	325	15030	110	110	-	15575	28	125	10	120	0	-	283	115	9	14864	295	150	-	15433	32264
% Cars	86.7	76.7	36.1	71.1	100.0	-	71.8	68.0	81.5	36.5	63.2	-	80.3	32.6	52.1	41.7	39.9	-	-	43.5	39.1	37.5	81.6	74.7	88.2	-	80.8	79.6
Light Goods Vehicles	11	23	15	289	0	-	338	127	2781	115	58	-	3081	33	74	13	156	0	-	276	153	13	2829	93	20	-	3108	6803
% Light Goods Vehicles	11.2	19.2	41.7	26.3	0.0	-	24.9	26.6	15.1	38.2	33.3	-	15.9	38.4	30.8	54.2	51.8	-	-	42.4	52.0	54.2	15.5	23.5	11.8	-	16.3	16.8
Buses	0	0	0	3	0	-	3	7	138	1	0	-	146	0	1	0	0	0	-	1	0	0	108	0	0	-	108	258
% Buses	0.0	0.0	0.0	0.3	0.0	-	0.2	1.5	0.7	0.3	0.0	-	0.8	0.0	0.4	0.0	0.0	-	-	0.2	0.0	0.0	0.6	0.0	0.0	-	0.6	0.6

Single-Unit Trucks	1	5	8	20	0	-	34	10	298	57	4	-	369	21	31	1	21	0	-	74	21	2	282	7	0	-	312	789
% Single-Unit Trucks	1.0	4.2	22.2	1.8	0.0	-	2.5	2.1	1.6	18.9	2.3	-	1.9	24.4	12.9	4.2	7.0	-	-	11.4	7.1	8.3	1.5	1.8	0.0	-	1.6	1.9
Articulated Trucks	1	0	0	1	0	-	2	0	137	17	1	-	155	4	9	0	3	0	-	16	4	0	66	0	0	-	70	243
% Articulated Trucks	1.0	0.0	0.0	0.1	0.0	-	0.1	0.0	0.7	5.6	0.6	-	0.8	4.7	3.8	0.0	1.0	-	-	2.5	1.4	0.0	0.4	0.0	0.0	-	0.4	0.6
Bicycles on Road	0	0	0	0	0	-	0	3	2	0	0	-	5	0	0	0	0	0	-	0	0	0	7	0	0	-	7	12
% Bicycles on Road	0.0	0.0	0.0	0.0	0.0	-	0.0	0.6	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	-	16	-	-	-	-	-	-	35	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-	-	-	-	-	100.0	-	-

City of Santa Clarita (CA)
23920 Valencia Blvd.

Santa Clarita, California, United States 12345
(661) 286-4002 cromo@santa-clarita.com

Count Name: Newhall Avenue and Pine Street
TMC
Site Code:
Start Date: 08/27/2015



Turning Movement Data Plot

City of Santa Clarita (CA)
23920 Valencia Blvd.

Santa Clarita, California, United States 12345
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Count Name: Newhall Avenue and Pine Street TMC
Site Code:
Start Date: 08/27/2015

Turning Movement Peak Hour Data (7:30 AM)

Start Time	Arch Street Southbound							Newhall Avenue Westbound						Pine Street Northbound							Newhall Avenue Eastbound							
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Int. Total
7:30 AM	2	6	1	18	0	0	27	3	401	3	1	0	408	3	2	0	3	0	0	8	8	1	382	1	0	1	392	835
7:45 AM	3	2	1	23	0	0	29	7	381	7	6	0	401	3	3	1	12	0	0	19	10	0	361	5	4	1	380	829
8:00 AM	4	1	0	18	0	0	23	13	302	8	4	0	327	3	1	1	5	0	0	10	7	0	421	11	8	0	447	807
8:15 AM	3	3	1	17	0	0	24	4	293	7	2	0	306	3	0	0	3	0	0	6	8	0	332	5	2	0	347	683
Total	12	12	3	76	0	0	103	27	1377	25	13	0	1442	12	6	2	23	0	0	43	33	1	1496	22	14	2	1566	3154
Approach %	11.7	11.7	2.9	73.8	0.0	-	-	1.9	95.5	1.7	0.9	-	-	27.9	14.0	4.7	53.5	0.0	-	-	2.1	0.1	95.5	1.4	0.9	-	-	-
Total %	0.4	0.4	0.1	2.4	0.0	-	3.3	0.9	43.7	0.8	0.4	-	45.7	0.4	0.2	0.1	0.7	0.0	-	1.4	1.0	0.0	47.4	0.7	0.4	-	49.7	-
PHF	0.750	0.500	0.750	0.826	0.000	-	0.888	0.519	0.858	0.781	0.542	-	0.884	1.000	0.500	0.500	0.479	0.000	-	0.566	0.825	0.250	0.888	0.500	0.438	-	0.876	0.944
Motorcycles	0	0	0	1	0	-	1	0	4	0	0	-	4	0	0	0	0	0	-	0	0	0	8	0	0	-	8	13
% Motorcycles	0.0	0.0	0.0	1.3	-	-	1.0	0.0	0.3	0.0	0.0	-	0.3	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.5	0.0	0.0	-	0.5	0.4
Cars	11	9	1	47	0	-	68	22	1132	11	11	-	1176	3	1	0	3	0	-	7	19	0	1272	17	12	-	1320	2571
% Cars	91.7	75.0	33.3	61.8	-	-	66.0	81.5	82.2	44.0	84.6	-	81.6	25.0	16.7	0.0	13.0	-	-	16.3	57.6	0.0	85.0	77.3	85.7	-	84.3	81.5
Light Goods Vehicles	1	2	2	26	0	-	31	5	200	8	2	-	215	5	1	2	17	0	-	25	9	1	177	4	2	-	193	464
% Light Goods Vehicles	8.3	16.7	66.7	34.2	-	-	30.1	18.5	14.5	32.0	15.4	-	14.9	41.7	16.7	100.0	73.9	-	-	58.1	27.3	100.0	11.8	18.2	14.3	-	12.3	14.7
Buses	0	0	0	0	0	-	0	0	11	1	0	-	12	0	0	0	0	0	-	0	0	0	14	0	0	-	14	26
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.8	4.0	0.0	-	0.8	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.9	0.0	0.0	-	0.9	0.8
Single-Unit Trucks	0	1	0	2	0	-	3	0	26	4	0	-	30	3	4	0	3	0	-	10	4	0	15	1	0	-	20	63
% Single-Unit Trucks	0.0	8.3	0.0	2.6	-	-	2.9	0.0	1.9	16.0	0.0	-	2.1	25.0	66.7	0.0	13.0	-	-	23.3	12.1	0.0	1.0	4.5	0.0	-	1.3	2.0
Articulated Trucks	0	0	0	0	0	-	0	0	3	1	0	-	4	1	0	0	0	0	-	1	1	0	8	0	0	-	9	14
% Articulated Trucks	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.2	4.0	0.0	-	0.3	8.3	0.0	0.0	0.0	-	-	2.3	3.0	0.0	0.5	0.0	0.0	-	0.6	0.4
Bicycles on Road	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	0	-	0	0	0	2	0	0	-	2	3
% Bicycles on Road	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.1	0.0	0.0	-	0.1	0.1
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

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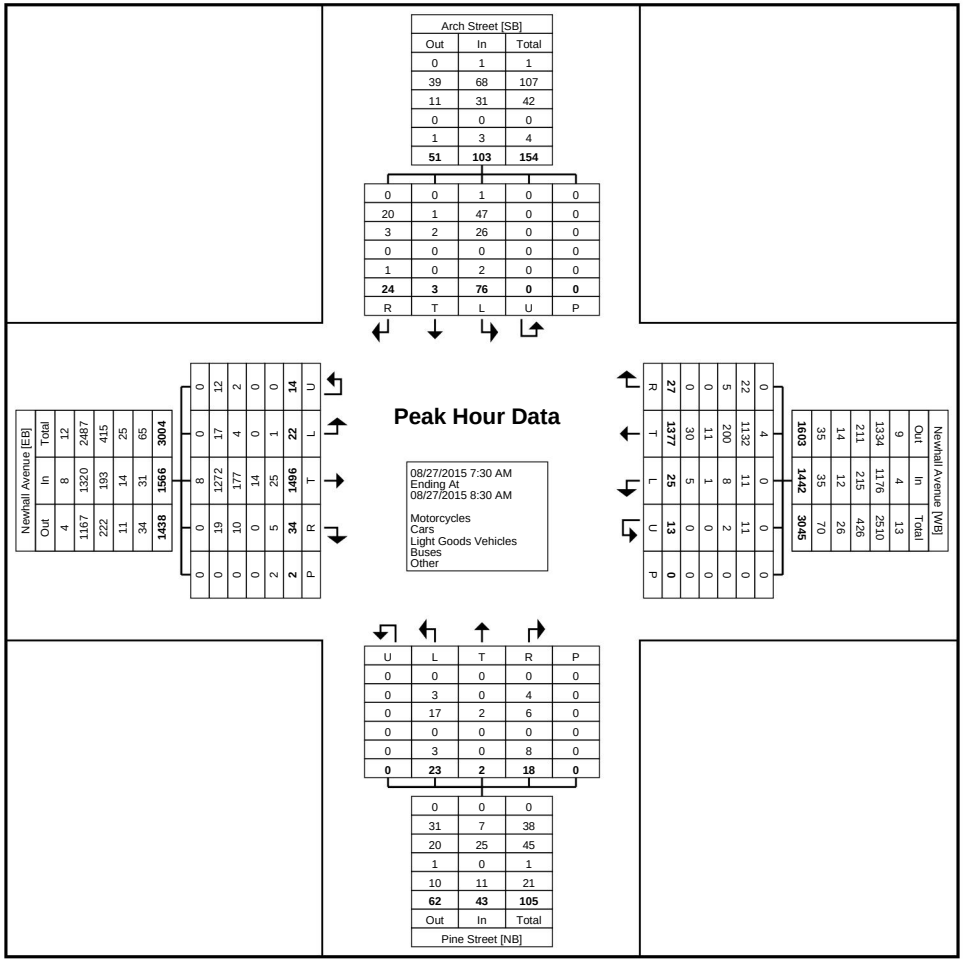

Turning Movement Peak Hour Data Plot (7:30 AM)

City of Santa Clarita (CA)
23920 Valencia Blvd.

Santa Clarita, California, United States 12345
(661) 286-4002 cromo@santa-clarita.com

Count Name: Newhall Avenue and Pine Street TMC
Site Code:
Start Date: 08/27/2015

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Arch Street Southbound							Newhall Avenue Westbound						Pine Street Northbound							Newhall Avenue Eastbound							Int. Total
	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	Right	Right on Red	Thru	Left	U-Turn	Peds	App. Total	
4:45 PM	6	2	0	21	0	0	29	15	424	6	0	0	445	2	7	1	11	0	0	21	2	0	387	13	1	0	403	898
5:00 PM	1	3	0	19	0	0	23	9	389	4	3	0	405	4	18	1	17	0	0	40	3	1	381	5	3	0	393	861
5:15 PM	0	5	1	18	0	0	24	9	414	4	2	0	429	0	5	0	5	0	0	10	2	0	420	3	4	0	429	892
5:30 PM	1	1	0	14	0	0	16	7	404	1	0	0	412	1	6	0	2	0	0	9	0	0	373	7	3	0	383	820
Total	8	11	1	72	0	0	92	40	1631	15	5	0	1691	7	36	2	35	0	0	80	7	1	1561	28	11	0	1608	3471
Approach %	8.7	12.0	1.1	78.3	0.0	-	-	2.4	96.5	0.9	0.3	-	-	8.8	45.0	2.5	43.8	0.0	-	-	0.4	0.1	97.1	1.7	0.7	-	-	-
Total %	0.2	0.3	0.0	2.1	0.0	-	2.7	1.2	47.0	0.4	0.1	-	48.7	0.2	1.0	0.1	1.0	0.0	-	2.3	0.2	0.0	45.0	0.8	0.3	-	46.3	-
PHF	0.333	0.550	0.250	0.857	0.000	-	0.793	0.667	0.962	0.625	0.417	-	0.950	0.438	0.500	0.500	0.515	0.000	-	0.500	0.583	0.250	0.929	0.538	0.688	-	0.937	0.966
Motorcycles	0	0	0	1	0	-	1	1	12	0	0	-	13	0	0	0	0	0	-	0	0	0	4	0	0	-	4	18
% Motorcycles	0.0	0.0	0.0	1.4	-	-	1.1	2.5	0.7	0.0	0.0	-	0.8	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.3	0.0	0.0	-	0.2	0.5
Cars	6	10	0	54	0	-	70	24	1331	7	4	-	1366	3	24	0	20	0	-	47	1	0	1297	20	10	-	1328	2811
% Cars	75.0	90.9	0.0	75.0	-	-	76.1	60.0	81.6	46.7	80.0	-	80.8	42.9	66.7	0.0	57.1	-	-	58.8	14.3	0.0	83.1	71.4	90.9	-	82.6	81.0
Light Goods Vehicles	2	1	1	16	0	-	20	14	254	6	1	-	275	4	12	2	15	0	-	33	6	1	235	8	1	-	251	579
% Light Goods Vehicles	25.0	9.1	100.0	22.2	-	-	21.7	35.0	15.6	40.0	20.0	-	16.3	57.1	33.3	100.0	42.9	-	-	41.3	85.7	100.0	15.1	28.6	9.1	-	15.6	16.7
Buses	0	0	0	0	0	-	0	0	15	0	0	-	15	0	0	0	0	0	-	0	0	0	8	0	0	-	8	23
% Buses	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.9	0.0	0.0	-	0.9	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.5	0.0	0.0	-	0.5	0.7
Single-Unit Trucks	0	0	0	1	0	-	1	1	10	2	0	-	13	0	0	0	0	0	-	0	0	0	16	0	0	-	16	30
% Single-Unit Trucks	0.0	0.0	0.0	1.4	-	-	1.1	2.5	0.6	13.3	0.0	-	0.8	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	1.0	0.0	0.0	-	1.0	0.9
Articulated Trucks	0	0	0	0	0	-	0	0	9	0	0	-	9	0	0	0	0	0	-	0	0	0	1	0	0	-	1	10
% Articulated Trucks	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.6	0.0	0.0	-	0.5	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.1	0.0	0.0	-	0.1	0.3
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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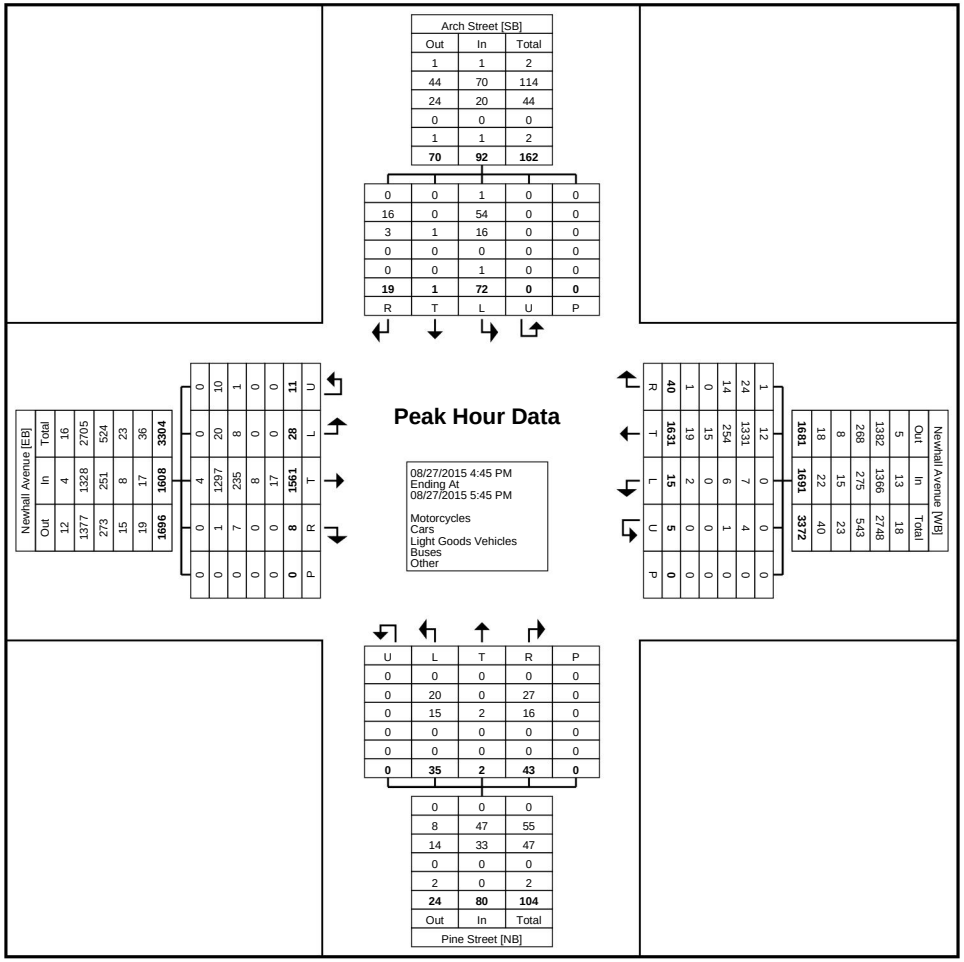
Start Date: 08/27/2015



Turning Movement Peak Hour Data Plot (4:45 PM)

Intersection #3 – Newhall Avenue and Carl Court

146 SC TUE - TMC
Tue Jan 29, 2019
Full Length (7 AM-9 AM, 11:30 AM-1:30 PM, 4:30 PM-6:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618766, Location: 34.37204, -118.516781

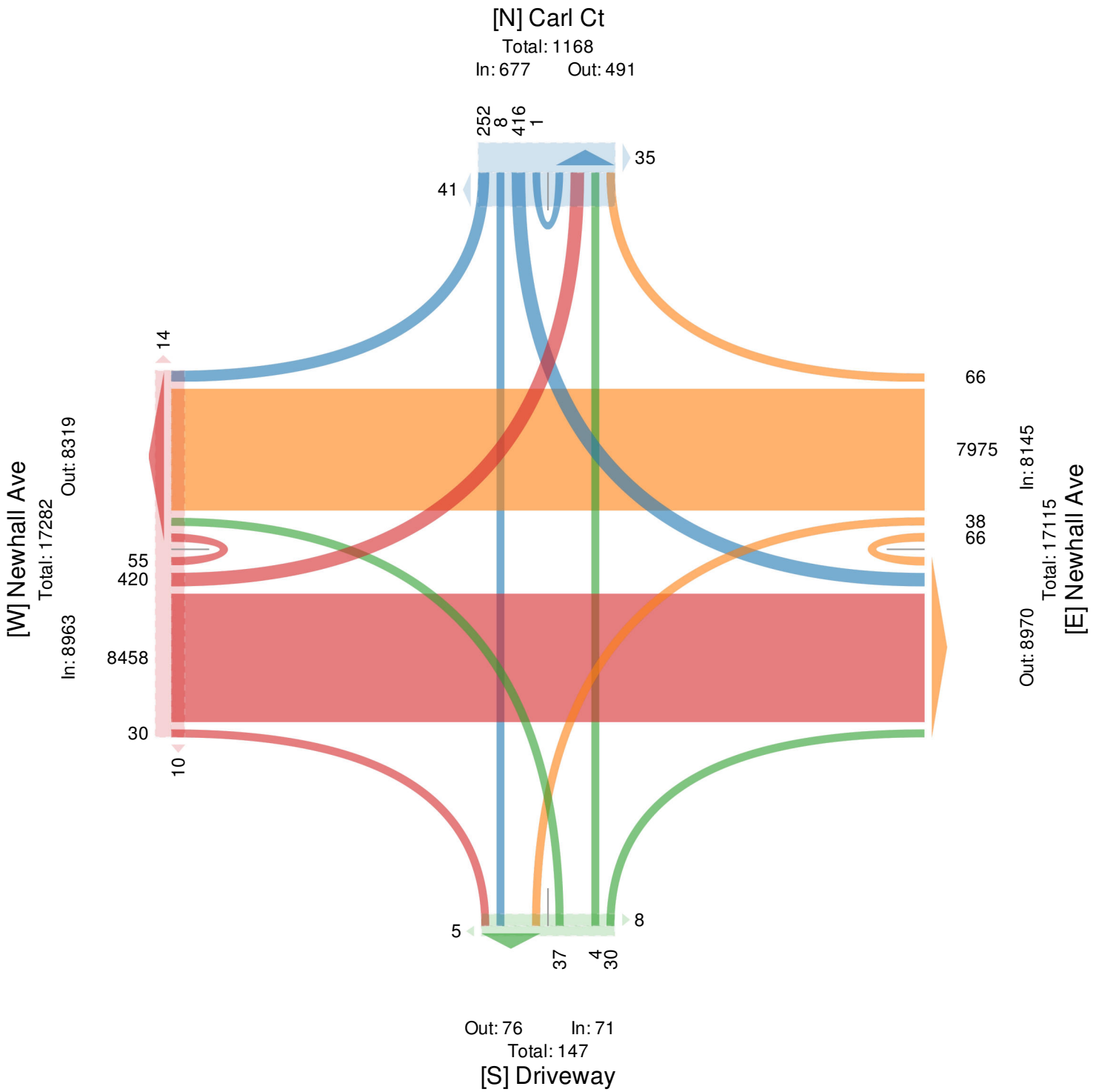
Provided by: IDAX Data Solutions
1305 N 30th St, Renton, WA, 98056, US

Leg	Carl Ct						Newhall Ave						Driveway						Newhall Ave						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2019-01-29 7:00AM	26	1	54	0	**81**	10	10	1398	6	4	**1418**	0	2	0	6	0	**8**	3	5	1647	63	7	**1722**	1	**3229**
8:00AM	30	1	69	0	**100**	8	14	1385	14	7	**1420**	0	4	0	3	0	**7**	1	4	1394	65	5	**1468**	5	**2995**
11:00AM	28	0	34	0	**62**	9	3	579	3	8	**593**	0	1	1	4	0	**6**	0	4	537	33	7	**581**	2	**1242**
12:00PM	44	4	66	1	**115**	12	13	1146	8	15	**1182**	0	5	1	9	0	**15**	8	4	1160	81	4	**1249**	7	**2561**
1:00PM	19	2	33	0	**54**	2	4	572	2	6	**584**	0	3	1	5	0	**9**	0	5	564	29	4	**602**	1	**1249**
4:00PM	28	0	47	0	**75**	8	4	773	1	6	**784**	0	5	0	5	0	**10**	0	2	767	36	10	**815**	2	**1684**
5:00PM	53	0	82	0	**135**	17	9	1405	3	15	**1432**	0	7	1	2	0	**10**	1	5	1684	83	8	**1780**	4	**3357**
6:00PM	24	0	31	0	**55**	10	9	717	1	5	**732**	0	3	0	3	0	**6**	0	1	705	30	10	**746**	2	**1539**
Total	252	8	416	1	**677**	76	66	7975	38	66	**8145**	0	30	4	37	0	**71**	13	30	8458	420	55	**8963**	24	**17856**
% Approach	37.2%	1.2%	61.4%	0.1%	**-**	-	0.8%	97.9%	0.5%	0.8%	**-**	-	42.3%	5.6%	52.1%	0%	**-**	-	0.3%	94.4%	4.7%	0.6%	**-**	-	-
% Total	1.4%	0%	2.3%	0%	**3.8%**	-	0.4%	44.7%	0.2%	0.4%	**45.6%**	-	0.2%	0%	0.2%	0%	**0.4%**	-	0.2%	47.4%	2.4%	0.3%	**50.2%**	-	-
Lights and Motorcycles	240	7	408	1	**656**	-	57	7715	38	64	**7874**	-	30	4	36	0	**70**	-	30	8242	413	55	**8740**	-	17340
% Lights and Motorcycles	95.2%	87.5%	98.1%	100%	**96.9%**	-	86.4%	96.7%	100%	97.0%	**96.7%**	-	100%	100%	97.3%	0%	**98.6%**	-	100%	97.4%	98.3%	100%	**97.5%**	-	97.1%
Heavy	12	1	8	0	**21**	-	9	258	0	2	**269**	-	0	0	1	0	**1**	-	0	213	7	0	**220**	-	511
% Heavy	4.8%	12.5%	1.9%	0%	**3.1%**	-	13.6%	3.2%	0%	3.0%	**3.3%**	-	0%	0%	2.7%	0%	**1.4%**	-	0%	2.5%	1.7%	0%	**2.5%**	-	2.9%
Bicycles on Road	0	0	0	0	**0**	-	0	2	0	0	**2**	-	0	0	0	0	**0**	-	0	3	0	0	**3**	-	5
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	63	-	-	-	-	-	0	-	-	-	-	-	13	-	-	-	-	-	24	
% Pedestrians	-	-	-	-	-	82.9%	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	13	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	17.1%	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

146 SCTUE - TMC
Tue Jan 29, 2019
Full Length (7 AM-9 AM, 11:30 AM-1:30 PM, 4:30 PM-6:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618766, Location: 34.37204, -118.516781

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



146 SCTUE - TMC
Tue Jan 29, 2019
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618766, Location: 34.37204, -118.516781

Provided by: IDAX Data Solutions
1305 N 30th St, Renton, WA, 98056, US

Leg	Carl Ct						Newhall Ave						Driveway						Newhall Ave						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2019-01-29 7:15AM	4	0	15	0	**19**	5	2	285	2	1	**290**	0	0	0	1	0	**1**	1	1	478	14	1	**494**	0	**804**
7:30AM	7	0	10	0	**17**	2	4	457	3	2	**466**	0	1	0	0	0	**1**	0	0	359	10	3	**372**	1	**856**
7:45AM	6	0	16	0	**22**	1	1	446	1	0	**448**	0	0	0	0	0	**0**	1	0	376	21	3	**400**	0	**870**
8:00AM	8	1	27	0	**36**	1	3	347	4	3	**357**	0	1	0	1	0	**2**	1	1	370	25	4	**400**	2	**795**
Total	25	1	68	0	**94**	9	10	1535	10	6	**1561**	0	2	0	2	0	**4**	3	2	1583	70	11	**1666**	3	**3325**
% Approach	26.6%	1.1%	72.3%	0%	**-**	-	0.6%	98.3%	0.6%	0.4%	**-**	-	50.0%	0%	50.0%	0%	**-**	-	0.1%	95.0%	4.2%	0.7%	**-**	-	-
% Total	0.8%	0%	2.0%	0%	**2.8%**	-	0.3%	46.2%	0.3%	0.2%	**46.9%**	-	0.1%	0%	0.1%	0%	**0.1%**	-	0.1%	47.6%	2.1%	0.3%	**50.1%**	-	-
PHF	0.781	0.250	0.630	-	**0.653**	-	0.625	0.840	0.625	0.500	**0.837**	-	0.500	-	0.500	-	**0.500**	-	0.500	0.828	0.700	0.688	**0.843**	-	0.955
Lights and Motorcycles	24	1	68	0	**93**	-	9	1488	10	6	**1513**	-	2	0	2	0	**4**	-	2	1541	68	11	**1622**	-	3232
% Lights and Motorcycles	96.0%	100%	100%	0%	**98.9%**	-	90.0%	96.9%	100%	100%	**96.9%**	-	100%	0%	100%	0%	**100%**	-	100%	97.3%	97.1%	100%	**97.4%**	-	97.2%
Heavy	1	0	0	0	**1**	-	1	47	0	0	**48**	-	0	0	0	0	**0**	-	0	42	2	0	**44**	-	93
% Heavy	4.0%	0%	0%	0%	**1.1%**	-	10.0%	3.1%	0%	0%	**3.1%**	-	0%	0%	0%	0%	**0%**	-	0%	2.7%	2.9%	0%	**2.6%**	-	2.8%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	7	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	77.8%	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	22.2%	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

146 SC TUE - TMC
Tue Jan 29, 2019
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618766, Location: 34.37204, -118.516781

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1305 N 30th St,
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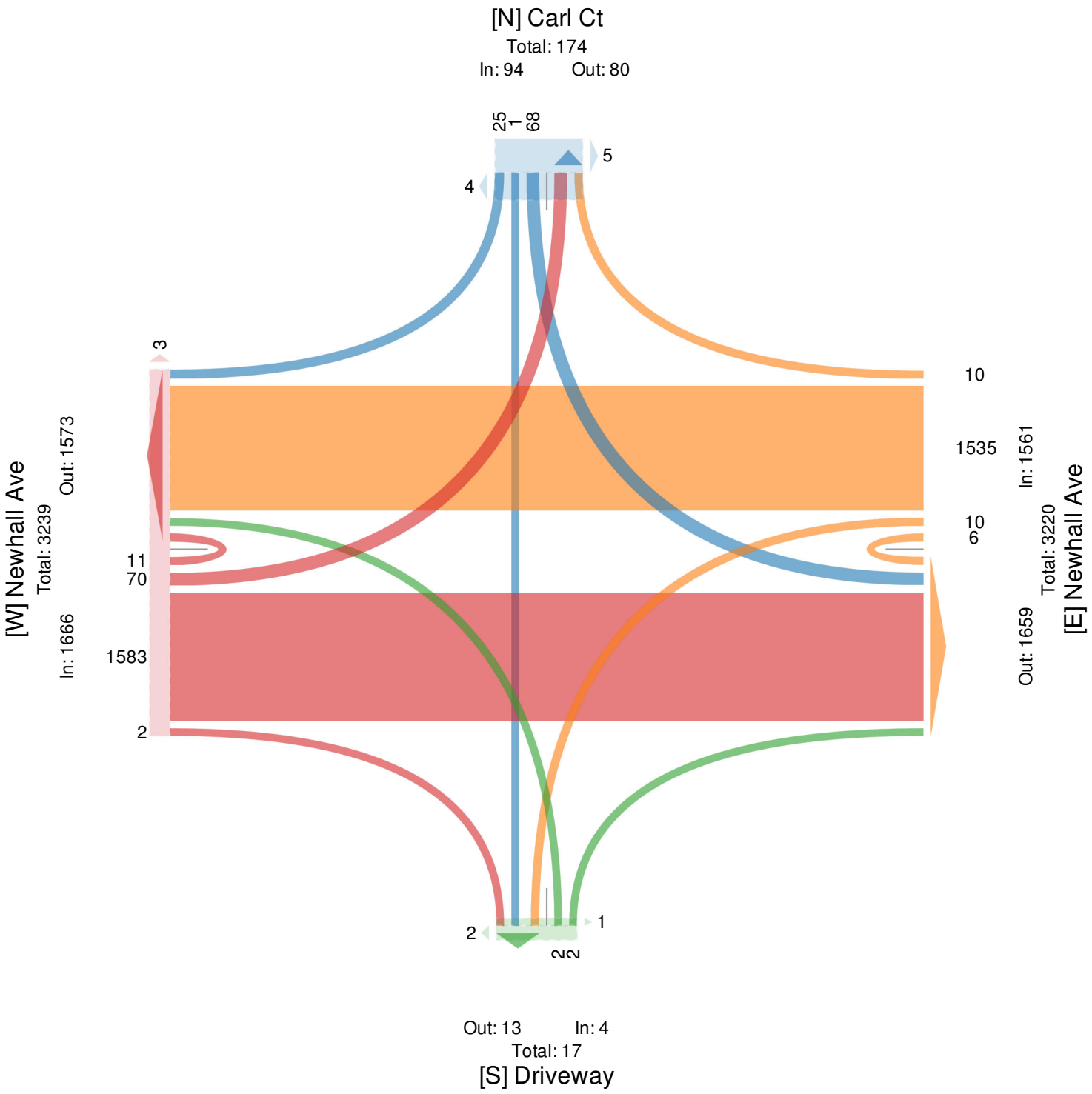

146 SC TUE - TMC
Tue Jan 29, 2019
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618766, Location: 34.37204, -118.516781

Provided by: IDAX Data Solutions
1305 N 30th St, Renton, WA, 98056, US

Leg	Carl Ct						Newhall Ave						Driveway						Newhall Ave						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2019-01-29 4:45PM	13	0	14	0	**27**	3	1	379	1	2	**383**	0	1	0	0	0	**1**	0	1	421	16	4	**442**	0	**853**
5:00PM	19	0	16	0	**35**	6	6	404	0	4	**414**	0	3	1	0	0	**4**	0	1	431	23	1	**456**	1	**909**
5:15PM	10	0	24	0	**34**	2	3	326	1	2	**332**	0	3	0	0	0	**3**	0	0	394	26	4	**424**	1	**793**
5:30PM	16	0	26	0	**42**	7	0	350	1	5	**356**	0	0	0	1	0	**1**	0	3	459	21	2	**485**	0	**884**
Total	58	0	80	0	**138**	18	10	1459	3	13	**1485**	0	7	1	1	0	**9**	0	5	1705	86	11	**1807**	2	**3439**
% Approach	42.0%	0%	58.0%	0%	**-**	-	0.7%	98.2%	0.2%	0.9%	**-**	-	77.8%	11.1%	11.1%	0%	**-**	-	0.3%	94.4%	4.8%	0.6%	**-**	-	-
% Total	1.7%	0%	2.3%	0%	**4.0%**	-	0.3%	42.4%	0.1%	0.4%	**43.2%**	-	0.2%	0%	0%	0%	**0.3%**	-	0.1%	49.6%	2.5%	0.3%	**52.5%**	-	-
PHF	0.763	-	0.769	-	**0.821**	-	0.417	0.902	0.750	0.650	**0.896**	-	0.583	0.250	0.250	-	**0.563**	-	0.417	0.928	0.827	0.688	**0.931**	-	0.946
Lights and Motorcycles	57	0	80	0	**137**	-	10	1428	3	13	**1454**	-	7	1	1	0	**9**	-	5	1683	86	11	**1785**	-	3385
% Lights and Motorcycles	98.3%	0%	100%	0%	**99.3%**	-	100%	97.9%	100%	100%	**97.9%**	-	100%	100%	100%	0%	**100%**	-	100%	98.7%	100%	100%	**98.8%**	-	98.4%
Heavy	1	0	0	0	**1**	-	0	29	0	0	**29**	-	0	0	0	0	**0**	-	0	21	0	0	**21**	-	51
% Heavy	1.7%	0%	0%	0%	**0.7%**	-	0%	2.0%	0%	0%	**2.0%**	-	0%	0%	0%	0%	**0%**	-	0%	1.2%	0%	0%	**1.2%**	-	1.5%
Bicycles on Road	0	0	0	0	**0**	-	0	2	0	0	**2**	-	0	0	0	0	**0**	-	0	1	0	0	**1**	-	3
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0.1%	0%	0%	**0.1%**	-	0%	0%	0%	0%	**0%**	-	0%	0.1%	0%	0%	**0.1%**	-	0.1%
Pedestrians	-	-	-	-	-	15	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	83.3%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	16.7%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

146 SC TUE - TMC
Tue Jan 29, 2019
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618766, Location: 34.37204, -118.516781

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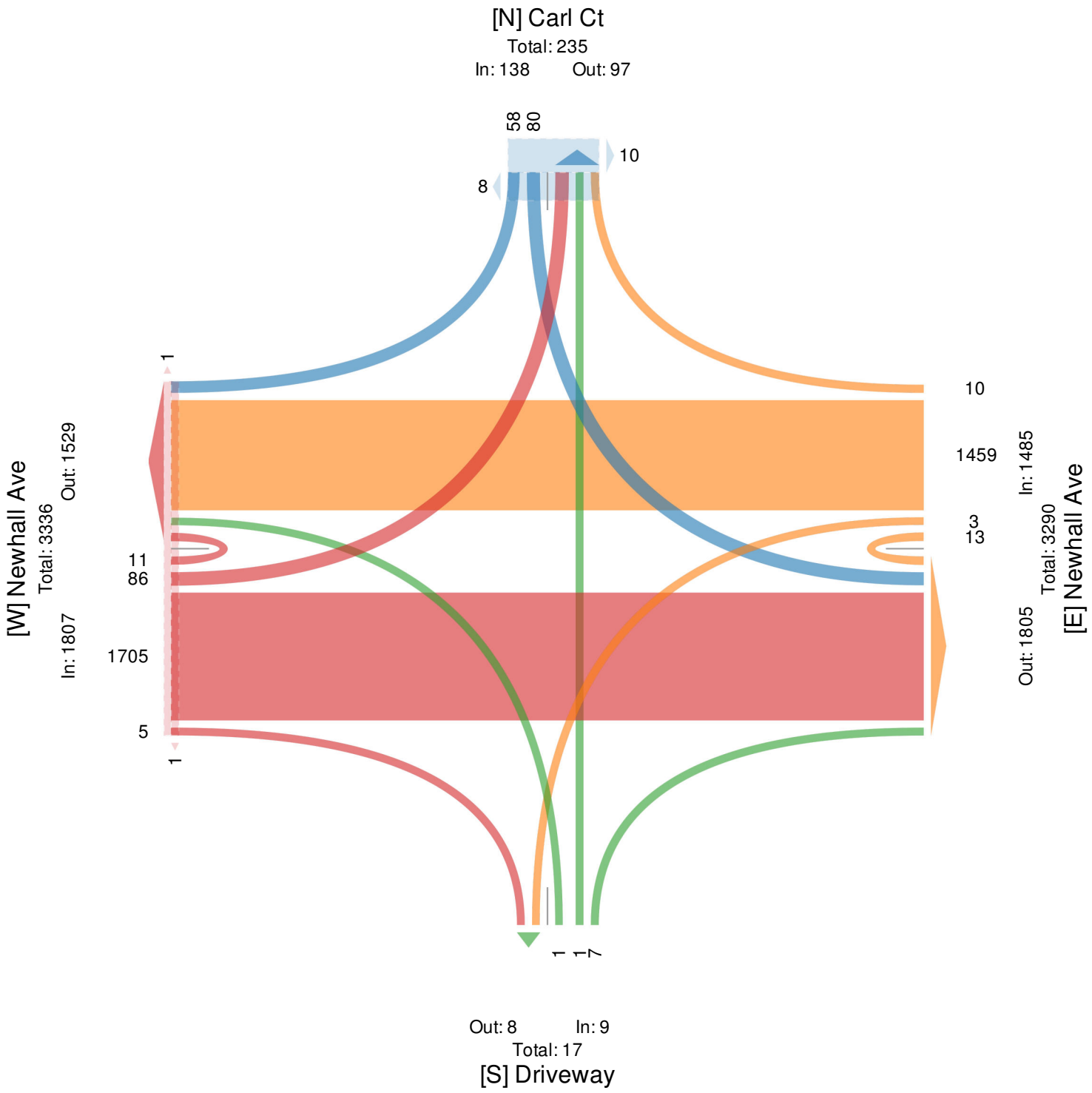
1305 N 30th St,
Renton, WA, 98056, US



Intersection #4 – Newhall Avenue and Valle del Oro

147 SCTUE - TMC
Tue Jan 29, 2019
Full Length (7 AM-9 AM, 11:30 AM-1:30 PM, 4:30 PM-6:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618768, Location: 34.370753, -118.514726

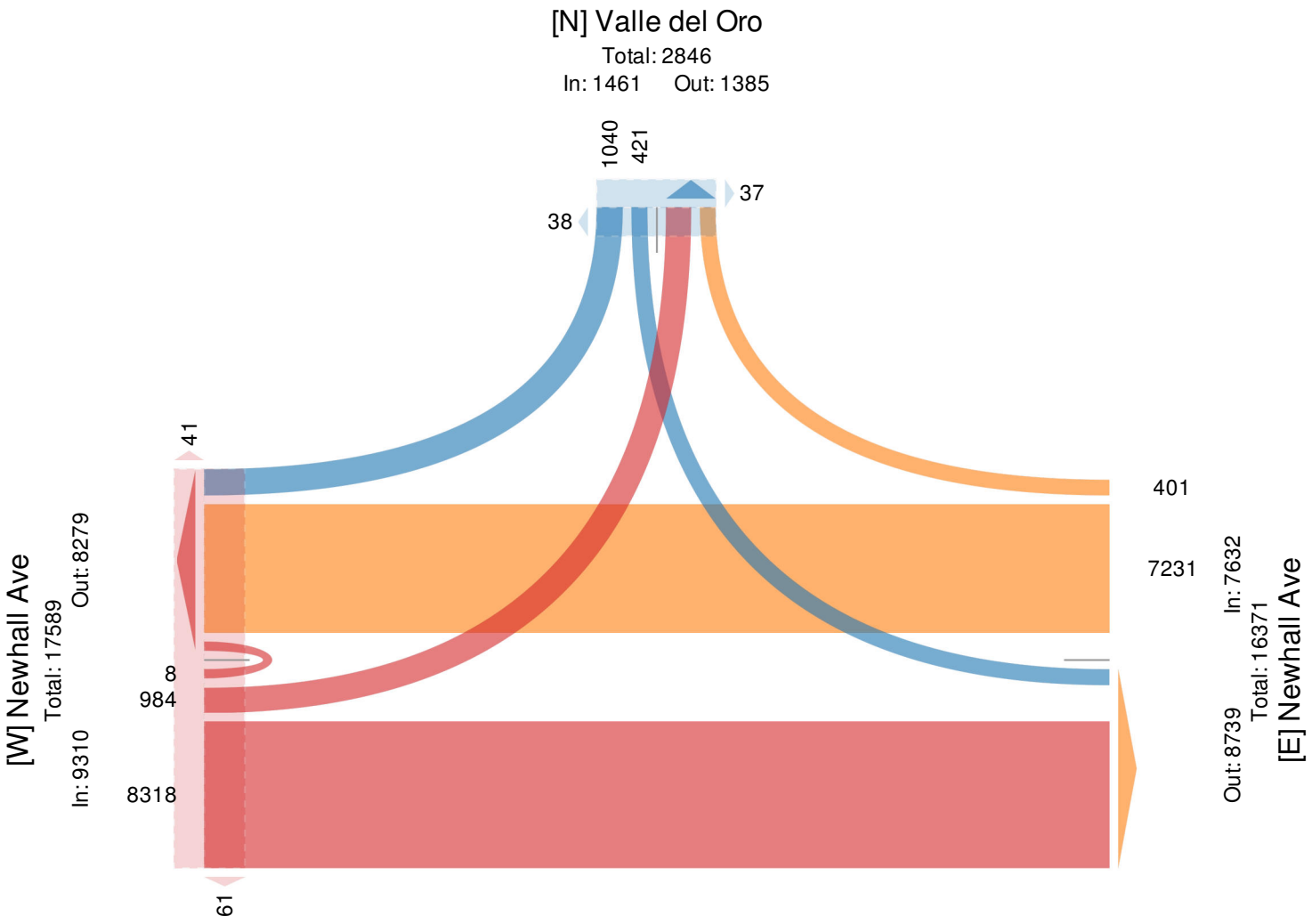
Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US

Leg Direction	Valle del Oro Southbound					Newhall Ave Westbound					Newhall Ave Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2019-01-29 7:00AM	295	127	0	**422**	15	73	1183	0	**1256**	0	1580	145	0	**1725**	46	**3403**
8:00AM	188	105	0	**293**	8	62	1213	0	**1275**	0	1396	112	1	**1509**	8	**3077**
11:00AM	72	15	0	**87**	1	17	520	0	**537**	0	518	58	1	**577**	2	**1201**
12:00PM	109	46	0	**155**	12	34	1082	0	**1116**	0	1117	112	3	**1232**	15	**2503**
1:00PM	62	20	0	**82**	5	24	533	0	**557**	0	568	63	1	**632**	1	**1271**
4:00PM	60	25	0	**85**	9	39	734	0	**773**	0	787	110	1	**898**	14	**1756**
5:00PM	174	54	0	**228**	18	92	1272	0	**1364**	0	1656	281	0	**1937**	11	**3529**
6:00PM	80	29	0	**109**	7	60	694	0	**754**	0	696	103	1	**800**	5	**1663**
Total	1040	421	0	**1461**	75	401	7231	0	**7632**	0	8318	984	8	**9310**	102	**18403**
% Approach	71.2%	28.8%	0%	-	-	5.3%	94.7%	0%	-	-	89.3%	10.6%	0.1%	-	-	-
% Total	5.7%	2.3%	0%	**7.9%**	-	2.2%	39.3%	0%	**41.5%**	-	45.2%	5.3%	0%	**50.6%**	-	-
Lights and Motorcycles	1029	415	0	**1444**	-	390	6961	0	**7351**	-	8085	976	8	**9069**	-	17864
% Lights and Motorcycles	98.9%	98.6%	0%	**98.8%**	-	97.3%	96.3%	0%	**96.3%**	-	97.2%	99.2%	100%	**97.4%**	-	97.1%
Heavy	10	6	0	**16**	-	11	269	0	**280**	-	233	8	0	**241**	-	537
% Heavy	1.0%	1.4%	0%	**1.1%**	-	2.7%	3.7%	0%	**3.7%**	-	2.8%	0.8%	0%	**2.6%**	-	2.9%
Bicycles on Road	1	0	0	**1**	-	0	1	0	**1**	-	0	0	0	**0**	-	2
% Bicycles on Road	0.1%	0%	0%	**0.1%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	72	-	-	-	-	0	-	-	-	-	102	
% Pedestrians	-	-	-	-	96.0%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	4.0%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

147 SC TUE - TMC
Tue Jan 29, 2019
Full Length (7 AM-9 AM, 11:30 AM-1:30 PM, 4:30 PM-6:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618768, Location: 34.370753, -118.514726

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



147 SCTUE - TMC
Tue Jan 29, 2019
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618768, Location: 34.370753, -118.514726

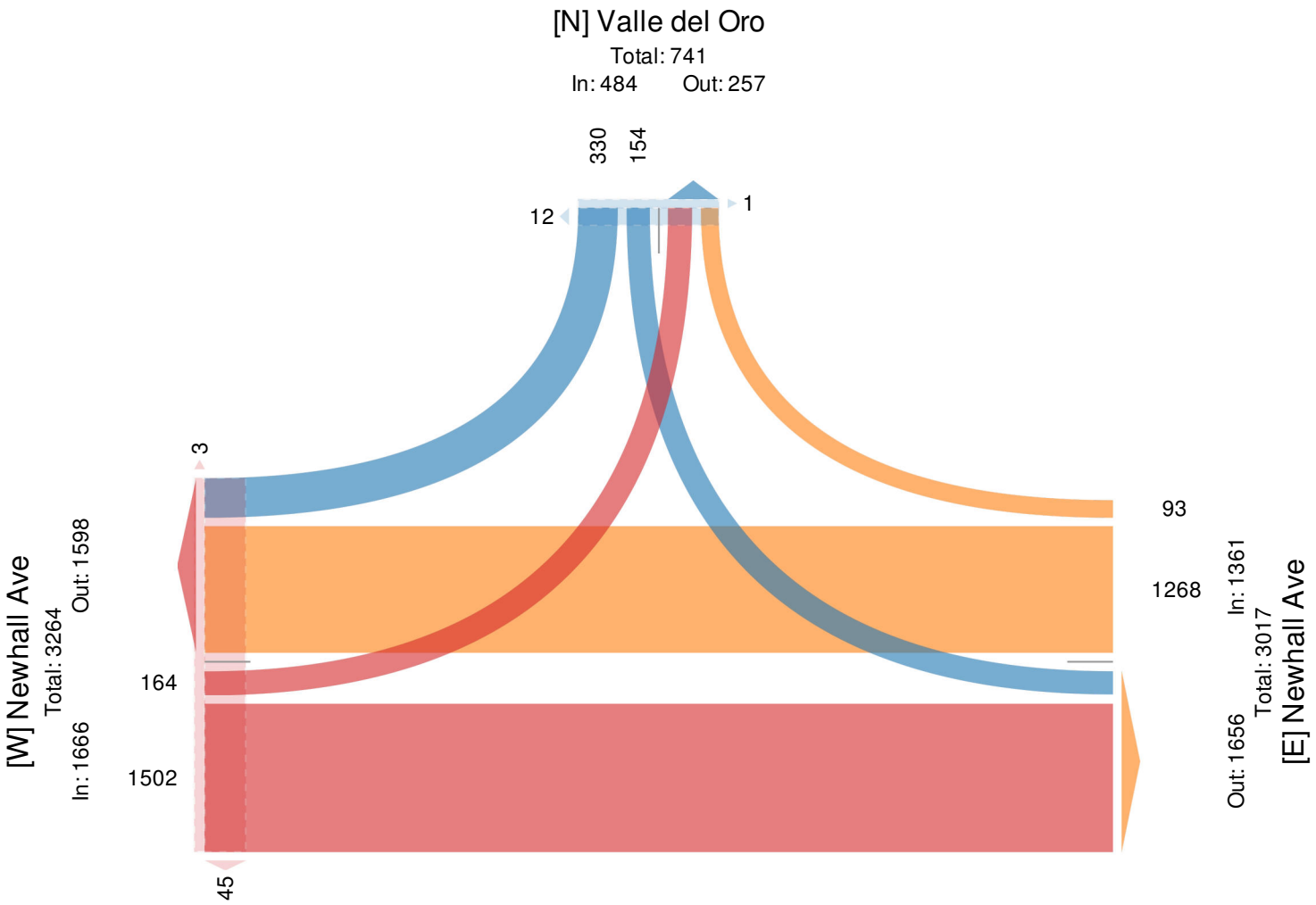
Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US

Leg Direction	Valle del Oro Southbound					Newhall Ave Westbound					Newhall Ave Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2019-01-29 7:15AM	64	23	0	**87**	3	15	228	0	**243**	0	464	30	0	**494**	3	**824**
7:30AM	96	38	0	**134**	5	27	386	0	**413**	0	336	45	0	**381**	12	**928**
7:45AM	94	42	0	**136**	4	24	383	0	**407**	0	336	47	0	**383**	30	**926**
8:00AM	76	51	0	**127**	1	27	271	0	**298**	0	366	42	0	**408**	3	**833**
Total	330	154	0	**484**	13	93	1268	0	**1361**	0	1502	164	0	**1666**	48	**3511**
% Approach	68.2%	31.8%	0%	-	-	6.8%	93.2%	0%	-	-	90.2%	9.8%	0%	-	-	-
% Total	9.4%	4.4%	0%	**13.8%**	-	2.6%	36.1%	0%	**38.8%**	-	42.8%	4.7%	0%	**47.5%**	-	-
PHF	0.859	0.755	-	**0.890**	-	0.861	0.821	-	**0.824**	-	0.809	0.872	-	**0.843**	-	0.946
Lights and Motorcycles	329	152	0	**481**	-	92	1223	0	**1315**	-	1461	162	0	**1623**	-	3419
% Lights and Motorcycles	99.7%	98.7%	0%	**99.4%**	-	98.9%	96.5%	0%	**96.6%**	-	97.3%	98.8%	0%	**97.4%**	-	97.4%
Heavy	1	2	0	**3**	-	1	45	0	**46**	-	41	2	0	**43**	-	92
% Heavy	0.3%	1.3%	0%	**0.6%**	-	1.1%	3.5%	0%	**3.4%**	-	2.7%	1.2%	0%	**2.6%**	-	2.6%
Bicycles on Road	0	0	0	**0**	-	0	0	0	**0**	-	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	12	-	-	-	-	0	-	-	-	-	48	
% Pedestrians	-	-	-	-	92.3%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	7.7%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

147 SCTUE - TMC
Tue Jan 29, 2019
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618768, Location: 34.370753, -118.514726

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



147 SCTUE - TMC
Tue Jan 29, 2019
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618768, Location: 34.370753, -118.514726

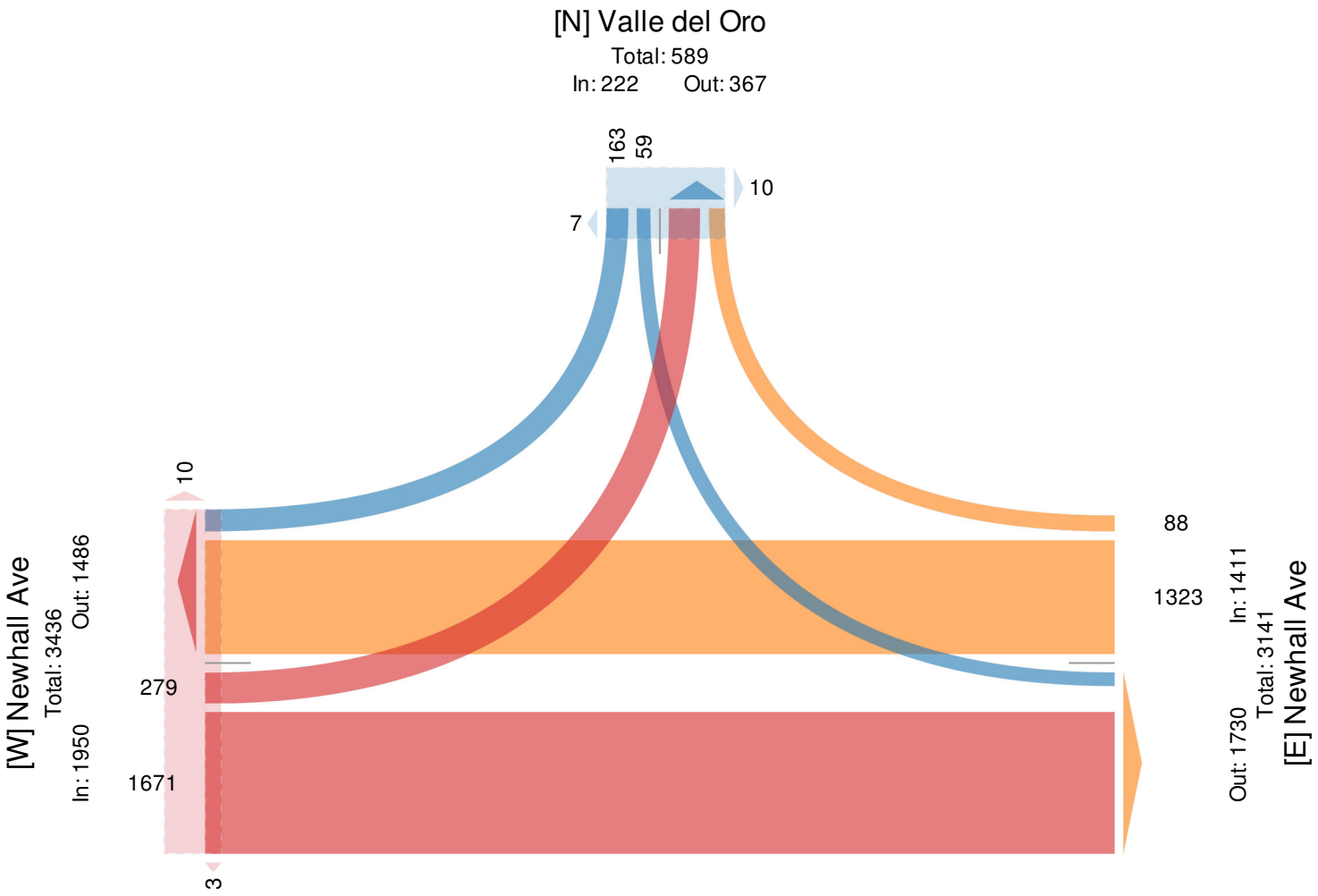
Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US

Leg Direction	Valle del Oro Southbound					Newhall Ave Westbound					Newhall Ave Eastbound					
Time	R	L	U	**App**	Ped*	R	T	U	**App**	Ped*	T	L	U	**App**	Ped*	**Int**
2019-01-29 4:45PM	27	17	0	**44**	9	18	348	0	**366**	0	406	61	0	**467**	5	**877**
5:00PM	50	17	0	**67**	0	20	371	0	**391**	0	439	52	0	**491**	0	**949**
5:15PM	44	15	0	**59**	4	20	296	0	**316**	0	396	81	0	**477**	5	**852**
5:30PM	42	10	0	**52**	4	30	308	0	**338**	0	430	85	0	**515**	3	**905**
Total	163	59	0	**222**	17	88	1323	0	**1411**	0	1671	279	0	**1950**	13	**3583**
% Approach	73.4%	26.6%	0%	**-**	-	6.2%	93.8%	0%	**-**	-	85.7%	14.3%	0%	**-**	-	-
% Total	4.5%	1.6%	0%	**6.2%**	-	2.5%	36.9%	0%	**39.4%**	-	46.6%	7.8%	0%	**54.4%**	-	-
PHF	0.815	0.868	-	**0.828**	-	0.733	0.891	-	**0.902**	-	0.952	0.821	-	**0.947**	-	0.944
Lights and Motorcycles	161	58	0	**219**	-	86	1291	0	**1377**	-	1650	277	0	**1927**	-	3523
% Lights and Motorcycles	98.8%	98.3%	0%	**98.6%**	-	97.7%	97.6%	0%	**97.6%**	-	98.7%	99.3%	0%	**98.8%**	-	98.3%
Heavy	2	1	0	**3**	-	2	31	0	**33**	-	21	2	0	**23**	-	59
% Heavy	1.2%	1.7%	0%	**1.4%**	-	2.3%	2.3%	0%	**2.3%**	-	1.3%	0.7%	0%	**1.2%**	-	1.6%
Bicycles on Road	0	0	0	**0**	-	0	1	0	**1**	-	0	0	0	**0**	-	1
% Bicycles on Road	0%	0%	0%	**0%**	-	0%	0.1%	0%	**0.1%**	-	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	15	-	-	-	-	0	-	-	-	-	13	
% Pedestrians	-	-	-	-	88.2%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	11.8%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

147 SC TUE - TMC
Tue Jan 29, 2019
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 618768, Location: 34.370753, -118.514726

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



Intersection #5 – Newhall Avenue and Sierra Highway

148 SC THU - TMC
Thu Feb 7, 2019
Full Length (6 AM-10 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 620971, Location: 34.365891, -118.506199

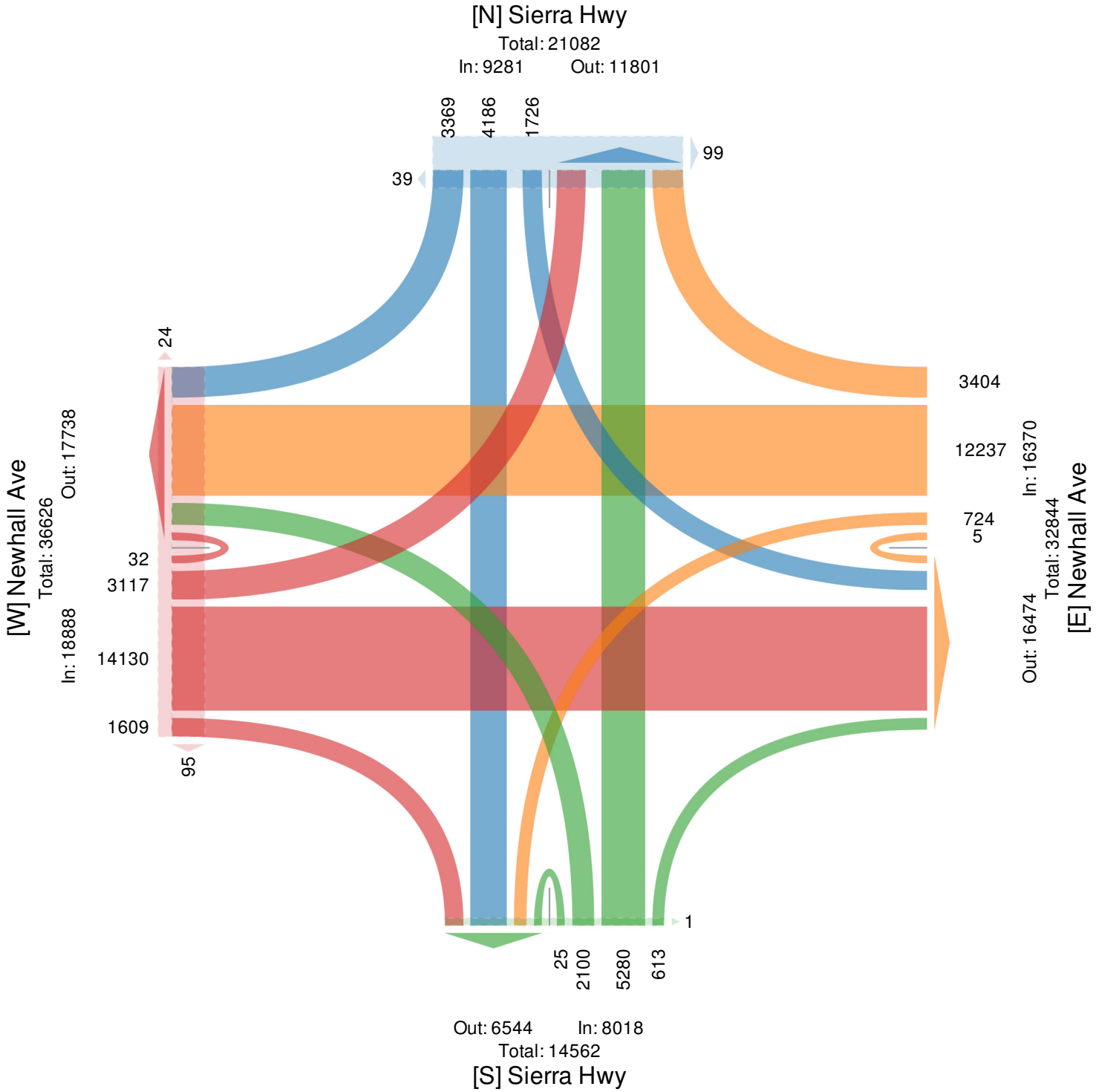
Provided by: IDAX Data Solutions
1305 N 30th St, Renton, WA, 98056, US

Leg	Sierra Hwy						Newhall Ave						Sierra Hwy						Newhall Ave						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2019-02-07 6:00AM	98	1267	438	0	**1803**	8	21	385	76	0	**482**	0	12	28	41	1	**82**	0	302	1198	67	0	**1567**	0	**3934**
7:00AM	244	1126	453	0	**1823**	18	33	595	63	0	**691**	0	13	58	68	1	**140**	0	252	1170	131	0	**1553**	6	**4207**
8:00AM	423	836	219	0	**1478**	7	38	664	95	2	**799**	0	10	52	88	1	**151**	0	284	1025	154	2	**1465**	0	**3893**
9:00AM	234	179	93	0	**506**	4	20	698	41	0	**759**	0	17	51	66	2	**136**	0	111	871	146	6	**1134**	0	**2535**
10:00AM	186	93	57	0	**336**	3	31	611	32	0	**674**	0	23	77	68	0	**168**	0	78	847	149	0	**1074**	1	**2252**
11:00AM	248	80	50	0	**378**	7	46	712	37	0	**795**	0	20	85	87	1	**193**	0	59	780	130	4	**973**	0	**2339**
12:00PM	193	86	47	0	**326**	5	55	764	46	0	**865**	0	24	101	120	1	**246**	0	73	853	188	3	**1117**	3	**2554**
1:00PM	188	71	46	0	**305**	9	59	837	49	0	**945**	0	32	116	124	1	**273**	0	78	899	205	3	**1185**	4	**2708**
2:00PM	234	59	50	0	**343**	1	88	1019	66	0	**1173**	0	46	194	133	0	**373**	0	60	748	181	2	**991**	0	**2880**
3:00PM	272	100	50	0	**422**	25	374	1049	43	0	**1466**	0	63	493	217	3	**776**	0	66	1021	335	1	**1423**	12	**4087**
4:00PM	264	67	53	0	**384**	0	555	951	48	0	**1554**	0	116	999	279	3	**1397**	0	59	1074	331	2	**1466**	2	**4801**
5:00PM	249	73	42	0	**364**	20	602	1015	36	1	**1654**	0	65	1033	265	7	**1370**	0	52	1173	377	0	**1602**	27	**4990**
6:00PM	201	42	50	0	**293**	8	578	896	32	1	**1507**	0	65	1073	238	1	**1377**	1	36	869	295	5	**1205**	44	**4382**
7:00PM	147	45	29	0	**221**	19	657	842	26	1	**1526**	0	89	710	192	0	**991**	0	40	582	186	0	**808**	18	**3546**
8:00PM	104	32	27	0	**163**	4	190	616	18	0	**824**	0	13	152	71	3	**239**	0	31	563	137	3	**734**	2	**1960**
9:00PM	84	30	22	0	**136**	0	57	583	16	0	**656**	0	5	58	43	0	**106**	0	28	457	105	1	**591**	0	**1489**
Total	3369	4186	1726	0	**9281**	138	3404	12237	724	5	**16370**	0	613	5280	2100	25	**8018**	1	1609	14130	3117	32	**18888**	119	**52557**
% Approach	36.3%	45.1%	18.6%	0%	**-**	-	20.8%	74.8%	4.4%	0%	**-**	-	7.6%	65.9%	26.2%	0.3%	**-**	-	8.5%	74.8%	16.5%	0.2%	**-**	-	-
% Total	6.4%	8.0%	3.3%	0%	**17.7%**	-	6.5%	23.3%	1.4%	0%	**31.1%**	-	1.2%	10.0%	4.0%	0%	**15.3%**	-	3.1%	26.9%	5.9%	0.1%	**35.9%**	-	-
Lights and Motorcycles	3261	4142	1710	0	**9113**	-	3363	11713	625	5	**15706**	-	601	5252	2076	24	**7953**	-	1577	13654	3023	31	**18285**	-	51057
% Lights and Motorcycles	96.8%	98.9%	99.1%	0%	**98.2%**	-	98.8%	95.7%	86.3%	100%	**95.9%**	-	98.0%	99.5%	98.9%	96.0%	**99.2%**	-	98.0%	96.6%	97.0%	96.9%	**96.8%**	-	97.1%
Heavy	107	43	16	0	**166**	-	41	514	99	0	**654**	-	11	28	23	1	**63**	-	32	474	93	1	**600**	-	1483
% Heavy	3.2%	1.0%	0.9%	0%	**1.8%**	-	1.2%	4.2%	13.7%	0%	**4.0%**	-	1.8%	0.5%	1.1%	4.0%	**0.8%**	-	2.0%	3.4%	3.0%	3.1%	**3.2%**	-	2.8%
Bicycles on Road	1	1	0	0	**2**	-	0	10	0	0	**10**	-	1	0	1	0	**2**	-	0	2	1	0	**3**	-	17
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0.1%	0%	0%	**0.1%**	-	0.2%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	138	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	119	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

148 SC THU - TMC
Thu Feb 7, 2019
Full Length (6 AM-10 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 620971, Location: 34.365891, -118.506199

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



148 SC THU - TMC
Thu Feb 7, 2019
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 620971, Location: 34.365891, -118.506199

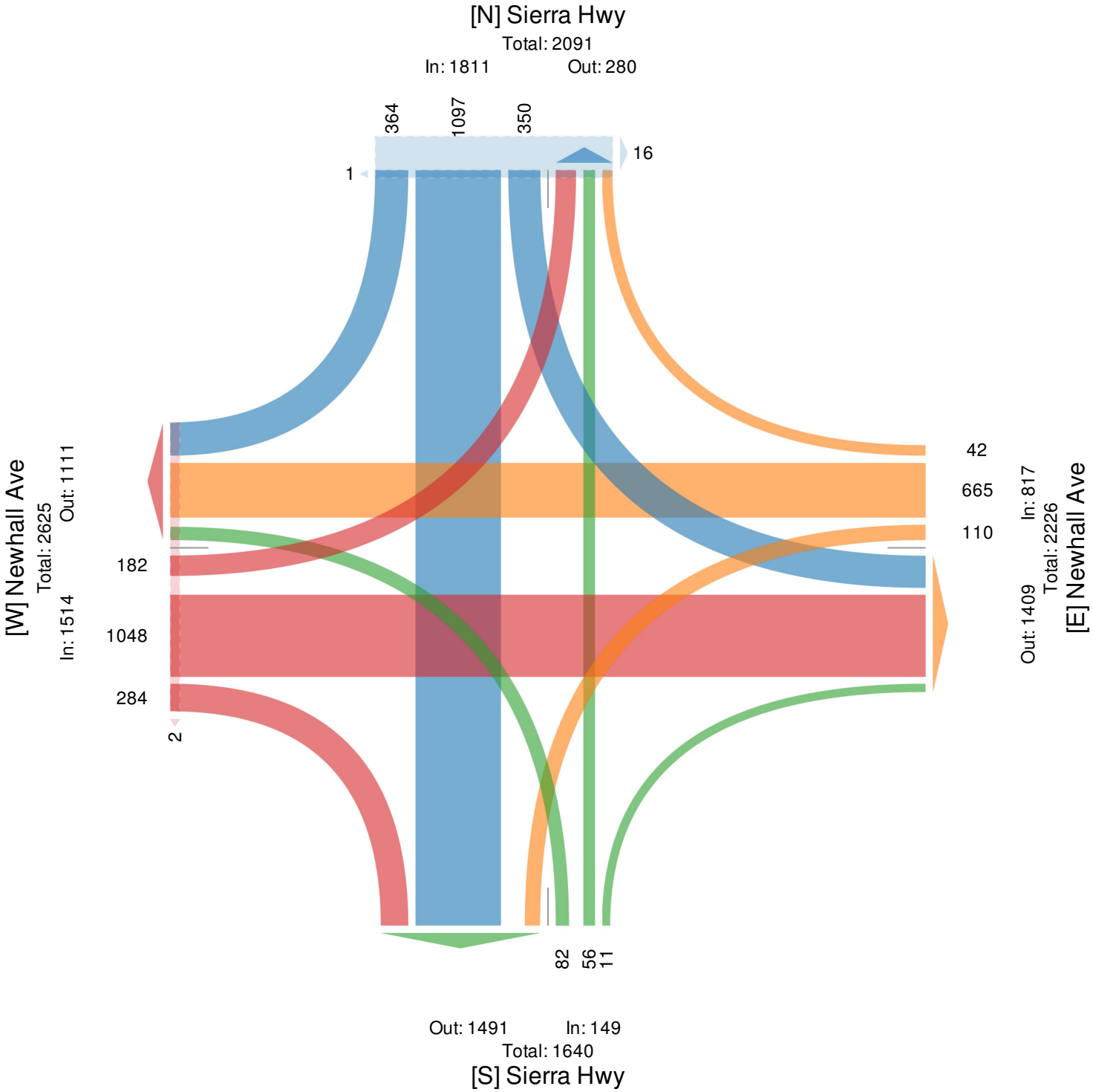
Provided by: IDAX Data Solutions
1305 N 30th St, Renton, WA, 98056, US

Leg	Sierra Hwy						Newhall Ave						Sierra Hwy						Newhall Ave						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2019-02-07 7:30AM	72	248	116	0	**436**	6	11	158	8	0	**177**	0	2	13	24	0	**39**	0	57	303	48	0	**408**	1	**1060**
7:45AM	84	320	95	0	**499**	8	9	204	25	0	**238**	0	3	16	14	0	**33**	0	64	230	45	0	**339**	1	**1109**
8:00AM	102	281	83	0	**466**	0	14	161	48	0	**223**	0	4	11	15	0	**30**	0	73	222	47	0	**342**	0	**1061**
8:15AM	106	248	56	0	**410**	3	8	142	29	0	**179**	0	2	16	29	0	**47**	0	90	293	42	0	**425**	0	**1061**
Total	364	1097	350	0	**1811**	17	42	665	110	0	**817**	0	11	56	82	0	**149**	0	284	1048	182	0	**1514**	2	**4291**
% Approach	20.1%	60.6%	19.3%	0%	-	-	5.1%	81.4%	13.5%	0%	-	-	7.4%	37.6%	55.0%	0%	-	-	18.8%	69.2%	12.0%	0%	-	-	-
% Total	8.5%	25.6%	8.2%	0%	**42.2%**	-	1.0%	15.5%	2.6%	0%	**19.0%**	-	0.3%	1.3%	1.9%	0%	**3.5%**	-	6.6%	24.4%	4.2%	0%	**35.3%**	-	-
PHF	0.858	0.857	0.754	-	**0.907**	-	0.750	0.815	0.573	-	**0.858**	-	0.688	0.875	0.707	-	**0.793**	-	0.789	0.865	0.948	-	**0.891**	-	0.967
Lights and Motorcycles	356	1090	349	0	**1795**	-	40	631	106	0	**777**	-	10	56	79	0	**145**	-	281	1009	173	0	**1463**	-	4180
% Lights and Motorcycles	97.8%	99.4%	99.7%	0%	**99.1%**	-	95.2%	94.9%	96.4%	0%	**95.1%**	-	90.9%	100%	96.3%	0%	**97.3%**	-	98.9%	96.3%	95.1%	0%	**96.6%**	-	97.4%
Heavy	8	7	1	0	**16**	-	2	34	4	0	**40**	-	1	0	3	0	**4**	-	3	39	9	0	**51**	-	111
% Heavy	2.2%	0.6%	0.3%	0%	**0.9%**	-	4.8%	5.1%	3.6%	0%	**4.9%**	-	9.1%	0%	3.7%	0%	**2.7%**	-	1.1%	3.7%	4.9%	0%	**3.4%**	-	2.6%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	17	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

148 SC THU - TMC
Thu Feb 7, 2019
AM Peak (7:30 AM - 8:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 620971, Location: 34.365891, -118.506199

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



148 SC THU - TMC
Thu Feb 7, 2019
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 620971, Location: 34.365891, -118.506199

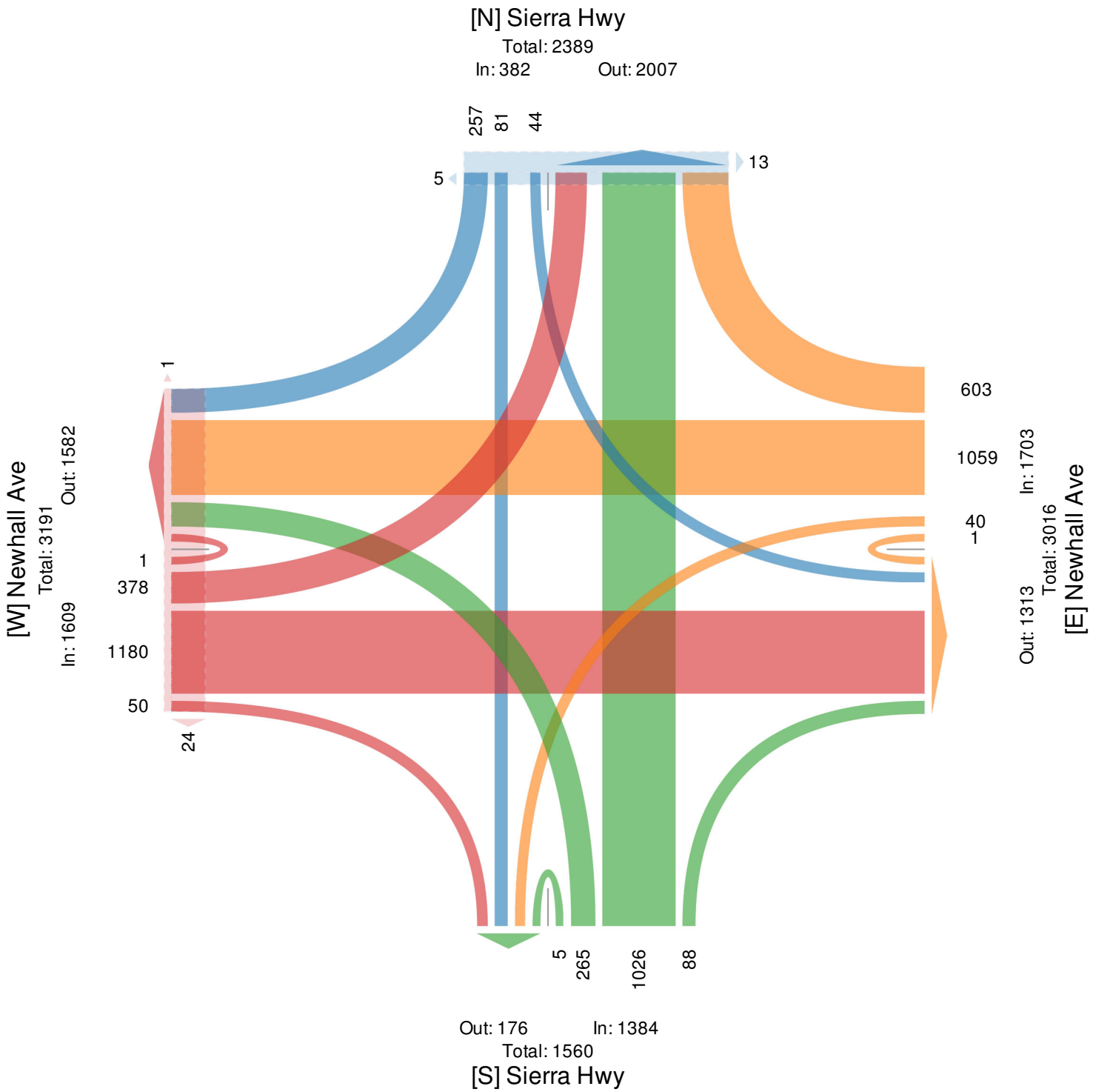
Provided by: IDAX Data Solutions
1305 N 30th St, Renton, WA, 98056, US

Leg	Sierra Hwy						Newhall Ave						Sierra Hwy						Newhall Ave						
Direction	Southbound						Westbound						Northbound						Eastbound						
Time	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	Int
2019-02-07 4:45PM	73	23	11	0	**107**	0	153	262	12	0	**427**	0	38	276	68	1	**383**	0	8	309	101	1	**419**	0	**1336**
5:00PM	44	18	9	0	**71**	4	146	265	13	1	**425**	0	18	232	70	2	**322**	0	10	265	109	0	**384**	2	**1202**
5:15PM	79	19	8	0	**106**	4	156	257	9	0	**422**	0	16	267	56	1	**340**	0	17	300	87	0	**404**	16	**1272**
5:30PM	61	21	16	0	**98**	10	148	275	6	0	**429**	0	16	251	71	1	**339**	0	15	306	81	0	**402**	7	**1268**
Total	257	81	44	0	**382**	18	603	1059	40	1	**1703**	0	88	1026	265	5	**1384**	0	50	1180	378	1	**1609**	25	**5078**
% Approach	67.3%	21.2%	11.5%	0%	**-**	-	35.4%	62.2%	2.3%	0.1%	**-**	-	6.4%	74.1%	19.1%	0.4%	**-**	-	3.1%	73.3%	23.5%	0.1%	**-**	-	-
% Total	5.1%	1.6%	0.9%	0%	**7.5%**	-	11.9%	20.9%	0.8%	0%	**33.5%**	-	1.7%	20.2%	5.2%	0.1%	**27.3%**	-	1.0%	23.2%	7.4%	0%	**31.7%**	-	-
PHF	0.813	0.880	0.688	-	**0.893**	-	0.966	0.963	0.769	0.250	**0.992**	-	0.579	0.929	0.933	0.625	**0.903**	-	0.735	0.955	0.867	0.250	**0.960**	-	0.950
Lights and Motorcycles	252	81	41	0	**374**	-	598	1037	37	1	**1673**	-	88	1023	265	4	**1380**	-	50	1157	370	1	**1578**	-	5005
% Lights and Motorcycles	98.1%	100%	93.2%	0%	**97.9%**	-	99.2%	97.9%	92.5%	100%	**98.2%**	-	100%	99.7%	100%	80.0%	**99.7%**	-	100%	98.1%	97.9%	100%	**98.1%**	-	98.6%
Heavy	5	0	3	0	**8**	-	5	22	3	0	**30**	-	0	3	0	1	**4**	-	0	23	8	0	**31**	-	73
% Heavy	1.9%	0%	6.8%	0%	**2.1%**	-	0.8%	2.1%	7.5%	0%	**1.8%**	-	0%	0.3%	0%	20.0%	**0.3%**	-	0%	1.9%	2.1%	0%	**1.9%**	-	1.4%
Bicycles on Road	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0
% Bicycles on Road	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%
Pedestrians	-	-	-	-	-	18	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	25	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

148 SC THU - TMC
Thu Feb 7, 2019
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements
ID: 620971, Location: 34.365891, -118.506199

Provided by: IDAX Data Solutions
1305 N 30th St,
Renton, WA, 98056, US



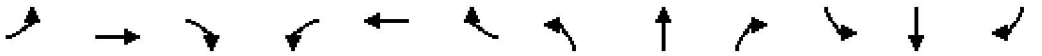
APPENDIX C

SYNCHRO ANALYSIS
INTERSECTION DELAY CALCULATION WORKSHEETS

Existing (2021) Without Project – AM Peak Hour

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	627	494	1187	1111	0
Future Volume (vph)	0	627	494	1187	1111	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	1.00	0.88	0.97	
Frpb, ped/bikes		1.00	1.00	0.99	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	1863	2757	3433	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	1863	2757	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	682	537	1290	1208	0
RTOR Reduction (vph)	0	0	0	78	0	0
Lane Group Flow (vph)	0	682	537	1212	1208	0
Confl. Peds. (#/hr)				6		
Turn Type		NA	NA	pm+ov	Prot	
Protected Phases		6	1	3	3	
Permitted Phases				1		
Actuated Green, G (s)		56.0	56.0	120.0	64.0	
Effective Green, g (s)		58.0	58.0	124.0	66.0	
Actuated g/C Ratio		0.44	0.44	0.94	0.50	
Clearance Time (s)		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1555	818	2757	1716	
v/s Ratio Prot		0.19	c0.29	0.22	c0.35	
v/s Ratio Perm				0.22		
v/c Ratio		0.44	0.66	0.44	0.70	
Uniform Delay, d1		25.7	29.2	0.4	25.5	
Progression Factor		1.00	0.71	195.12	0.70	
Incremental Delay, d2		0.2	3.8	0.5	2.2	
Delay (s)		25.9	24.6	81.0	20.1	
Level of Service		C	C	F	C	
Approach Delay (s)		25.9	64.4		20.1	
Approach LOS		C	E		C	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1685	38	43	1551	30	26	2	20	86	3	27
Future Volume (vph)	41	1685	38	43	1551	30	26	2	20	86	3	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1770	5069		1770	5071			1780	1583		1777	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.71	1.00
Satd. Flow (perm)	1770	5069		1770	5071			1306	1583		1324	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	1832	41	47	1686	33	28	2	22	93	3	29
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	19	0	0	26
Lane Group Flow (vph)	45	1872	0	47	1718	0	0	30	3	0	96	3
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		4
Actuated Green, G (s)	7.6	93.4		7.8	93.6			14.8	14.8		14.8	14.8
Effective Green, g (s)	8.6	95.4		8.8	95.6			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.07	0.72		0.07	0.72			0.12	0.12		0.12	0.12
Clearance Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	115	3663		118	3672			156	189		158	189
v/s Ratio Prot	0.03	c0.37		c0.03	0.34							
v/s Ratio Perm								0.02	0.00		c0.07	0.00
v/c Ratio	0.39	0.51		0.40	0.47			0.19	0.01		0.61	0.02
Uniform Delay, d1	59.2	8.0		59.1	7.6			52.4	51.2		55.2	51.3
Progression Factor	1.25	0.37		0.97	0.74			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.4		2.0	0.4			0.6	0.0		6.5	0.0
Delay (s)	75.6	3.4		59.5	6.0			53.0	51.3		61.6	51.3
Level of Service	E	A		E	A			D	D		E	D
Approach Delay (s)		5.1			7.4			52.2			59.2	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	84	1647	2	16	1597	10	2	0	2	71	1	26
Future Volume (vph)	84	1647	2	16	1597	10	2	0	2	71	1	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00			0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.95	1.00
Satd. Flow (prot)	1770	5084		1770	5080			1695			1775	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.89			0.73	1.00
Satd. Flow (perm)	1770	5084		1770	5080			1550			1354	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	1790	2	17	1736	11	2	0	2	77	1	28
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	0	25
Lane Group Flow (vph)	91	1792	0	17	1747	0	0	0	0	0	78	3
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	12.1	101.9		3.2	93.0			11.4			11.4	11.4
Effective Green, g (s)	12.6	103.9		3.7	95.0			12.4			12.4	12.4
Actuated g/C Ratio	0.10	0.79		0.03	0.72			0.09			0.09	0.09
Clearance Time (s)	4.5	6.0		4.5	6.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	168	4001		49	3656			145			127	148
v/s Ratio Prot	c0.05	0.35		0.01	c0.34							
v/s Ratio Perm								0.00			c0.06	0.00
v/c Ratio	0.54	0.45		0.35	0.48			0.00			0.61	0.02
Uniform Delay, d1	56.9	4.6		63.0	7.9			54.2			57.5	54.3
Progression Factor	0.92	0.69		1.01	0.46			1.00			1.00	1.00
Incremental Delay, d2	3.1	0.3		3.6	0.4			0.0			8.5	0.0
Delay (s)	55.7	3.5		67.4	4.0			54.2			66.0	54.3
Level of Service	E	A		E	A			D			E	D
Approach Delay (s)		6.0			4.7			54.2			62.9	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	160	343	171	1563	1319	97
Future Volume (vph)	160	343	171	1563	1319	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	5085	5033	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	5085	5033	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	373	186	1699	1434	105
RTOR Reduction (vph)	0	222	0	0	5	0
Lane Group Flow (vph)	174	151	186	1699	1534	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8				
Actuated Green, G (s)	19.4	19.4	20.5	101.6	76.6	
Effective Green, g (s)	20.4	20.4	21.0	103.6	78.6	
Actuated g/C Ratio	0.15	0.15	0.16	0.78	0.60	
Clearance Time (s)	5.0	5.0	4.5	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	273	244	281	3990	2996	
v/s Ratio Prot	c0.10		c0.11	0.33	c0.30	
v/s Ratio Perm		0.10				
v/c Ratio	0.64	0.62	0.66	0.43	0.51	
Uniform Delay, d1	52.3	52.2	52.2	4.6	15.5	
Progression Factor	1.00	1.00	0.93	0.79	0.42	
Incremental Delay, d2	4.8	4.8	5.3	0.3	0.5	
Delay (s)	57.1	57.0	53.7	4.0	7.0	
Level of Service	E	E	D	A	A	
Approach Delay (s)	57.1			8.9	7.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

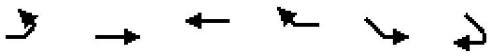
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	1090	295	114	692	44	85	58	11	364	1141	379
Future Volume (vph)	189	1090	295	114	692	44	85	58	11	364	1141	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3454		1770	4895	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3454		1770	4895	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	205	1185	321	124	752	48	92	63	12	396	1240	412
RTOR Reduction (vph)	0	0	161	0	0	33	0	11	0	0	42	0
Lane Group Flow (vph)	205	1185	160	124	752	15	92	64	0	396	1610	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	20.5	49.4	49.4	10.1	39.0	39.0	8.9	7.8		43.7	42.6	
Effective Green, g (s)	21.0	51.4	51.4	10.6	41.0	41.0	9.4	9.8		44.2	44.6	
Actuated g/C Ratio	0.16	0.39	0.39	0.08	0.31	0.31	0.07	0.07		0.33	0.34	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	546	1980	616	275	1579	491	244	256		592	1653	
v/s Ratio Prot	0.06	c0.23		0.04	c0.15		c0.03	0.02		0.22	c0.33	
v/s Ratio Perm			0.10			0.01						
v/c Ratio	0.38	0.60	0.26	0.45	0.48	0.03	0.38	0.25		0.67	0.97	
Uniform Delay, d1	49.6	32.1	27.4	57.9	36.8	31.7	58.5	57.6		37.6	43.1	
Progression Factor	1.08	1.11	2.03	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.2	0.9	1.2	1.0	0.1	1.0	0.5		2.9	16.2	
Delay (s)	54.1	37.0	56.5	59.1	37.8	31.8	59.5	58.1		40.5	59.3	
Level of Service	D	D	E	E	D	C	E	E		D	E	
Approach Delay (s)		42.7			40.4			58.9			55.7	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	48.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

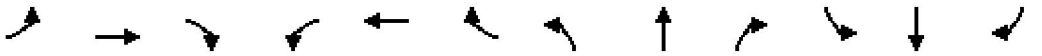
c Critical Lane Group

Existing (2021) Without Project – PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	733	508	1225	1045	0
Future Volume (vph)	0	733	508	1225	1045	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	1.00	0.88	0.97	
Frpb, ped/bikes		1.00	1.00	0.99	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	1863	2746	3433	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	1863	2746	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	797	552	1332	1136	0
RTOR Reduction (vph)	0	0	0	81	0	0
Lane Group Flow (vph)	0	797	552	1251	1136	0
Confl. Peds. (#/hr)				6		
Turn Type		NA	NA	pm+ov	Prot	
Protected Phases		6	1	3	3	
Permitted Phases				1		
Actuated Green, G (s)		76.0	76.0	120.0	44.0	
Effective Green, g (s)		78.0	78.0	124.0	46.0	
Actuated g/C Ratio		0.59	0.59	0.94	0.35	
Clearance Time (s)		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		2091	1100	2746	1196	
v/s Ratio Prot		0.23	c0.30	0.16	c0.33	
v/s Ratio Perm				0.30		
v/c Ratio		0.38	0.50	0.46	0.95	
Uniform Delay, d1		14.3	15.7	0.4	41.9	
Progression Factor		1.00	1.19	249.63	0.82	
Incremental Delay, d2		0.1	1.4	0.5	16.0	
Delay (s)		14.4	20.2	106.3	50.2	
Level of Service		B	C	F	D	
Approach Delay (s)		14.4	81.0		50.2	
Approach LOS		B	F		D	

Intersection Summary			
HCM 2000 Control Delay	57.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1758	9	23	1837	45	39	2	48	81	1	21
Future Volume (vph)	44	1758	9	23	1837	45	39	2	48	81	1	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	5081		1770	5067			1778	1583		1775	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.62	1.00		0.70	1.00
Satd. Flow (perm)	1770	5081		1770	5067			1153	1583		1297	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	1911	10	25	1997	49	42	2	52	88	1	23
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	46	0	0	20
Lane Group Flow (vph)	48	1921	0	25	2045	0	0	44	6	0	89	3
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		4
Actuated Green, G (s)	7.8	96.7		5.1	94.0			14.2	14.2		14.2	14.2
Effective Green, g (s)	8.8	98.7		6.1	96.0			15.2	15.2		15.2	15.2
Actuated g/C Ratio	0.07	0.75		0.05	0.73			0.12	0.12		0.12	0.12
Clearance Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	118	3799		81	3685			132	182		149	182
v/s Ratio Prot	c0.03	c0.38		0.01	c0.40							
v/s Ratio Perm								0.04	0.00		c0.07	0.00
v/c Ratio	0.41	0.51		0.31	0.55			0.33	0.03		0.60	0.01
Uniform Delay, d1	59.1	6.8		60.9	8.2			53.7	51.9		55.5	51.8
Progression Factor	1.23	0.31		1.17	0.50			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.6	0.3		2.0	0.6			1.5	0.1		6.3	0.0
Delay (s)	74.1	2.4		73.2	4.7			55.2	51.9		61.8	51.8
Level of Service	E	A		E	A			E	D		E	D
Approach Delay (s)		4.2			5.5			53.5			59.7	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	100	1774	5	17	1518	10	1	1	7	83	0	60
Future Volume (vph)	100	1774	5	17	1518	10	1	1	7	83	0	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00			0.89			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.95	1.00
Satd. Flow (prot)	1770	5083		1770	5080			1653			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.75	1.00
Satd. Flow (perm)	1770	5083		1770	5080			1626			1399	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	1928	5	18	1650	11	1	1	8	90	0	65
RTOR Reduction (vph)	0	0	0	0	0	0	0	7	0	0	0	58
Lane Group Flow (vph)	109	1933	0	18	1661	0	0	3	0	0	90	7
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	13.4	99.4		3.3	89.3			13.8			13.8	13.8
Effective Green, g (s)	13.9	101.4		3.8	91.3			14.8			14.8	14.8
Actuated g/C Ratio	0.11	0.77		0.03	0.69			0.11			0.11	0.11
Clearance Time (s)	4.5	6.0		4.5	6.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	186	3904		50	3513			182			156	177
v/s Ratio Prot	c0.06	c0.38		0.01	0.33							
v/s Ratio Perm								0.00			c0.06	0.00
v/c Ratio	0.59	0.50		0.36	0.47			0.02			0.58	0.04
Uniform Delay, d1	56.3	5.7		62.9	9.3			52.1			55.6	52.3
Progression Factor	0.79	1.64		0.91	1.21			1.00			1.00	1.00
Incremental Delay, d2	4.2	0.4		3.8	0.4			0.0			5.1	0.1
Delay (s)	48.9	9.8		60.8	11.7			52.2			60.7	52.4
Level of Service	D	A		E	B			D			E	D
Approach Delay (s)		11.9			12.2			52.2			57.2	
Approach LOS		B			B			D			E	

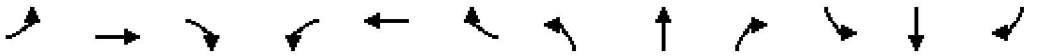
Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	61	170	290	1739	1376	92
Future Volume (vph)	61	170	290	1739	1376	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	5085	5038	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	5085	5038	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	185	315	1890	1496	100
RTOR Reduction (vph)	0	169	0	0	4	0
Lane Group Flow (vph)	66	16	315	1890	1592	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8				
Actuated Green, G (s)	10.3	10.3	30.5	110.7	75.7	
Effective Green, g (s)	11.3	11.3	31.0	112.7	77.7	
Actuated g/C Ratio	0.09	0.09	0.23	0.85	0.59	
Clearance Time (s)	5.0	5.0	4.5	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	151	135	415	4341	2965	
v/s Ratio Prot	c0.04		c0.18	0.37	c0.32	
v/s Ratio Perm		0.01				
v/c Ratio	0.44	0.12	0.76	0.44	0.54	
Uniform Delay, d1	57.3	55.7	47.0	2.2	16.3	
Progression Factor	1.00	1.00	1.01	1.44	0.33	
Incremental Delay, d2	2.0	0.4	7.2	0.3	0.6	
Delay (s)	59.3	56.1	54.9	3.5	5.9	
Level of Service	E	E	D	A	A	
Approach Delay (s)	57.0			10.9	5.9	
Approach LOS	E			B	A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

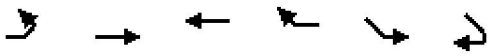


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	394	1128	52	43	1102	627	281	1067	92	46	84	267
Future Volume (vph)	394	1128	52	43	1102	627	281	1067	92	46	84	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3497		1770	4505	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3497		1770	4505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	1226	57	47	1198	682	305	1160	100	50	91	290
RTOR Reduction (vph)	0	0	33	0	0	191	0	5	0	0	267	0
Lane Group Flow (vph)	428	1226	24	47	1198	491	305	1255	0	50	114	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	21.4	52.5	52.5	6.1	37.2	37.2	43.9	44.4		8.0	8.5	
Effective Green, g (s)	21.9	54.5	54.5	6.6	39.2	39.2	44.4	46.4		8.5	10.5	
Actuated g/C Ratio	0.17	0.41	0.41	0.05	0.30	0.30	0.34	0.35		0.06	0.08	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	569	2099	653	171	1510	470	1154	1229		113	358	
v/s Ratio Prot	c0.12	0.24		0.01	0.24		0.09	c0.36		c0.03	0.03	
v/s Ratio Perm			0.01			c0.31						
v/c Ratio	0.75	0.58	0.04	0.27	0.79	1.04	0.26	1.02		0.44	0.32	
Uniform Delay, d1	52.5	30.0	23.1	60.4	42.7	46.4	31.9	42.8		59.5	57.4	
Progression Factor	1.20	1.33	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.2	1.1	0.1	0.9	4.4	53.5	0.1	31.2		2.8	0.5	
Delay (s)	68.3	41.0	23.2	61.3	47.0	99.9	32.0	74.0		62.2	57.9	
Level of Service	E	D	C	E	D	F	C	E		E	E	
Approach Delay (s)		47.3			66.1			65.9			58.4	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	59.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

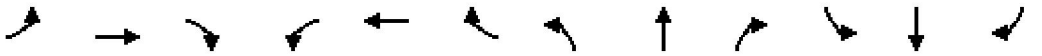
c Critical Lane Group

Existing (2021) With Project – AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	628	496	1193	1113	0
Future Volume (vph)	0	628	496	1193	1113	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	1.00	0.88	0.97	
Frpb, ped/bikes		1.00	1.00	0.99	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	1863	2757	3433	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	1863	2757	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	683	539	1297	1210	0
RTOR Reduction (vph)	0	0	0	79	0	0
Lane Group Flow (vph)	0	683	539	1218	1210	0
Confl. Peds. (#/hr)				6		
Turn Type		NA	NA	pm+ov	Prot	
Protected Phases		6	1	3	3	
Permitted Phases				1		
Actuated Green, G (s)		56.0	56.0	120.0	64.0	
Effective Green, g (s)		58.0	58.0	124.0	66.0	
Actuated g/C Ratio		0.44	0.44	0.94	0.50	
Clearance Time (s)		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1555	818	2757	1716	
v/s Ratio Prot		0.19	c0.29	0.22	c0.35	
v/s Ratio Perm				0.22		
v/c Ratio		0.44	0.66	0.44	0.71	
Uniform Delay, d1		25.7	29.2	0.4	25.5	
Progression Factor		1.00	0.72	191.75	0.70	
Incremental Delay, d2		0.2	3.8	0.5	2.2	
Delay (s)		25.9	24.8	80.0	20.1	
Level of Service		C	C	E	C	
Approach Delay (s)		25.9	63.8		20.1	
Approach LOS		C	E		C	

Intersection Summary			
HCM 2000 Control Delay	42.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	1688	38	43	1559	30	26	2	20	86	3	27
Future Volume (vph)	41	1688	38	43	1559	30	26	2	20	86	3	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1770	5069		1770	5071			1780	1583		1777	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.71	1.00
Satd. Flow (perm)	1770	5069		1770	5071			1306	1583		1324	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	45	1835	41	47	1695	33	28	2	22	93	3	29
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	19	0	0	26
Lane Group Flow (vph)	45	1875	0	47	1727	0	0	30	3	0	96	3
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		4
Actuated Green, G (s)	7.6	93.4		7.8	93.6			14.8	14.8		14.8	14.8
Effective Green, g (s)	8.6	95.4		8.8	95.6			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.07	0.72		0.07	0.72			0.12	0.12		0.12	0.12
Clearance Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	115	3663		118	3672			156	189		158	189
v/s Ratio Prot	0.03	c0.37		c0.03	0.34							
v/s Ratio Perm								0.02	0.00		c0.07	0.00
v/c Ratio	0.39	0.51		0.40	0.47			0.19	0.01		0.61	0.02
Uniform Delay, d1	59.2	8.1		59.1	7.6			52.4	51.2		55.2	51.3
Progression Factor	1.25	0.37		0.97	0.75			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.4		2.0	0.4			0.6	0.0		6.5	0.0
Delay (s)	75.7	3.4		59.5	6.1			53.0	51.3		61.6	51.3
Level of Service	E	A		E	A			D	D		E	D
Approach Delay (s)		5.1			7.5			52.2			59.2	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	84	1650	2	25	1597	10	2	0	2	71	1	26
Future Volume (vph)	84	1650	2	25	1597	10	2	0	2	71	1	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00			0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.95	1.00
Satd. Flow (prot)	1770	5084		1770	5080			1695			1775	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.89			0.73	1.00
Satd. Flow (perm)	1770	5084		1770	5080			1550			1354	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	1793	2	27	1736	11	2	0	2	77	1	28
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	0	25
Lane Group Flow (vph)	91	1795	0	27	1747	0	0	0	0	0	78	3
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	12.1	99.9		5.2	93.0			11.4			11.4	11.4
Effective Green, g (s)	12.6	101.9		5.7	95.0			12.4			12.4	12.4
Actuated g/C Ratio	0.10	0.77		0.04	0.72			0.09			0.09	0.09
Clearance Time (s)	4.5	6.0		4.5	6.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	168	3924		76	3656			145			127	148
v/s Ratio Prot	c0.05	0.35		0.02	c0.34							
v/s Ratio Perm								0.00			c0.06	0.00
v/c Ratio	0.54	0.46		0.36	0.48			0.00			0.61	0.02
Uniform Delay, d1	56.9	5.3		61.4	7.9			54.2			57.5	54.3
Progression Factor	0.92	0.67		1.00	0.47			1.00			1.00	1.00
Incremental Delay, d2	3.1	0.3		2.4	0.4			0.0			8.5	0.0
Delay (s)	55.7	3.9		63.6	4.1			54.2			66.0	54.3
Level of Service	E	A		E	A			D			E	D
Approach Delay (s)		6.4			5.0			54.2			62.9	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	160	343	179	1585	1328	97
Future Volume (vph)	160	343	179	1585	1328	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	5085	5034	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	5085	5034	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	373	195	1723	1443	105
RTOR Reduction (vph)	0	220	0	0	5	0
Lane Group Flow (vph)	174	153	195	1723	1543	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8				
Actuated Green, G (s)	19.5	19.5	20.5	101.5	76.5	
Effective Green, g (s)	20.5	20.5	21.0	103.5	78.5	
Actuated g/C Ratio	0.16	0.16	0.16	0.78	0.59	
Clearance Time (s)	5.0	5.0	4.5	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	274	245	281	3987	2993	
v/s Ratio Prot	c0.10		c0.11	0.34	c0.31	
v/s Ratio Perm		0.10				
v/c Ratio	0.64	0.62	0.69	0.43	0.52	
Uniform Delay, d1	52.2	52.1	52.5	4.7	15.6	
Progression Factor	1.00	1.00	0.95	0.82	0.41	
Incremental Delay, d2	4.8	4.9	6.7	0.3	0.6	
Delay (s)	57.0	57.0	56.8	4.1	7.0	
Level of Service	E	E	E	A	A	
Approach Delay (s)	57.0			9.5	7.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1110	296	114	700	44	85	58	11	364	1141	380
Future Volume (vph)	190	1110	296	114	700	44	85	58	11	364	1141	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3454		1770	4895	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3454		1770	4895	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	207	1207	322	124	761	48	92	63	12	396	1240	413
RTOR Reduction (vph)	0	0	158	0	0	33	0	11	0	0	42	0
Lane Group Flow (vph)	207	1207	164	124	761	15	92	64	0	396	1611	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	20.5	49.4	49.4	10.1	39.0	39.0	8.9	7.8		43.7	42.6	
Effective Green, g (s)	21.0	51.4	51.4	10.6	41.0	41.0	9.4	9.8		44.2	44.6	
Actuated g/C Ratio	0.16	0.39	0.39	0.08	0.31	0.31	0.07	0.07		0.33	0.34	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	546	1980	616	275	1579	491	244	256		592	1653	
v/s Ratio Prot	0.06	c0.24		0.04	c0.15		c0.03	0.02		0.22	c0.33	
v/s Ratio Perm			0.10			0.01						
v/c Ratio	0.38	0.61	0.27	0.45	0.48	0.03	0.38	0.25		0.67	0.97	
Uniform Delay, d1	49.7	32.3	27.5	57.9	36.9	31.7	58.5	57.6		37.6	43.1	
Progression Factor	1.10	1.15	2.11	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.3	1.0	1.2	1.1	0.1	1.0	0.5		2.9	16.3	
Delay (s)	55.3	38.4	59.0	59.1	37.9	31.8	59.5	58.1		40.5	59.5	
Level of Service	E	D	E	E	D	C	E	E		D	E	
Approach Delay (s)		44.2			40.4			58.9			55.8	
Approach LOS		D			D			E			E	

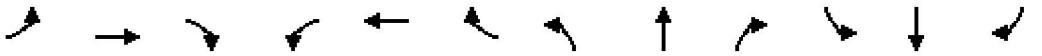
Intersection Summary			
HCM 2000 Control Delay	48.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Existing (2021) With Project – PM Peak Hour

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	735	509	1229	1051	0
Future Volume (vph)	0	735	509	1229	1051	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	1.00	0.88	0.97	
Frpb, ped/bikes		1.00	1.00	0.99	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	1863	2746	3433	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	1863	2746	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	799	553	1336	1142	0
RTOR Reduction (vph)	0	0	0	81	0	0
Lane Group Flow (vph)	0	799	553	1255	1142	0
Confl. Peds. (#/hr)				6		
Turn Type		NA	NA	pm+ov	Prot	
Protected Phases		6	1	3	3	
Permitted Phases				1		
Actuated Green, G (s)		76.0	76.0	120.0	44.0	
Effective Green, g (s)		78.0	78.0	124.0	46.0	
Actuated g/C Ratio		0.59	0.59	0.94	0.35	
Clearance Time (s)		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		2091	1100	2746	1196	
v/s Ratio Prot		0.23	c0.30	0.16	c0.33	
v/s Ratio Perm				0.30		
v/c Ratio		0.38	0.50	0.46	0.95	
Uniform Delay, d1		14.3	15.7	0.4	42.0	
Progression Factor		1.00	1.19	242.35	0.82	
Incremental Delay, d2		0.1	1.4	0.5	16.7	
Delay (s)		14.4	20.1	103.4	51.1	
Level of Service		B	C	F	D	
Approach Delay (s)		14.4	79.0		51.1	
Approach LOS		B	E		D	

Intersection Summary			
HCM 2000 Control Delay	57.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1766	9	23	1842	45	39	2	48	81	1	21
Future Volume (vph)	44	1766	9	23	1842	45	39	2	48	81	1	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	5081		1770	5067			1778	1583		1775	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.62	1.00		0.70	1.00
Satd. Flow (perm)	1770	5081		1770	5067			1153	1583		1297	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	1920	10	25	2002	49	42	2	52	88	1	23
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	46	0	0	20
Lane Group Flow (vph)	48	1930	0	25	2050	0	0	44	6	0	89	3
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		4
Actuated Green, G (s)	7.8	96.7		5.1	94.0			14.2	14.2		14.2	14.2
Effective Green, g (s)	8.8	98.7		6.1	96.0			15.2	15.2		15.2	15.2
Actuated g/C Ratio	0.07	0.75		0.05	0.73			0.12	0.12		0.12	0.12
Clearance Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	118	3799		81	3685			132	182		149	182
v/s Ratio Prot	c0.03	c0.38		0.01	c0.40							
v/s Ratio Perm								0.04	0.00		c0.07	0.00
v/c Ratio	0.41	0.51		0.31	0.56			0.33	0.03		0.60	0.01
Uniform Delay, d1	59.1	6.8		60.9	8.2			53.7	51.9		55.5	51.8
Progression Factor	1.23	0.31		1.13	0.58			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.6	0.3		2.0	0.6			1.5	0.1		6.3	0.0
Delay (s)	74.0	2.4		70.9	5.4			55.2	51.9		61.8	51.8
Level of Service	E	A		E	A			E	D		E	D
Approach Delay (s)		4.1			6.2			53.5			59.7	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	100	1782	5	41	1518	10	1	1	7	83	0	60
Future Volume (vph)	100	1782	5	41	1518	10	1	1	7	83	0	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00			0.89			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.95	1.00
Satd. Flow (prot)	1770	5083		1770	5080			1653			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.75	1.00
Satd. Flow (perm)	1770	5083		1770	5080			1626			1399	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	1937	5	45	1650	11	1	1	8	90	0	65
RTOR Reduction (vph)	0	0	0	0	0	0	0	7	0	0	0	58
Lane Group Flow (vph)	109	1942	0	45	1661	0	0	3	0	0	90	7
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	13.4	95.1		7.6	89.3			13.8			13.8	13.8
Effective Green, g (s)	13.9	97.1		8.1	91.3			14.8			14.8	14.8
Actuated g/C Ratio	0.11	0.74		0.06	0.69			0.11			0.11	0.11
Clearance Time (s)	4.5	6.0		4.5	6.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	186	3739		108	3513			182			156	177
v/s Ratio Prot	c0.06	c0.38		0.03	0.33							
v/s Ratio Perm								0.00			c0.06	0.00
v/c Ratio	0.59	0.52		0.42	0.47			0.02			0.58	0.04
Uniform Delay, d1	56.3	7.5		59.7	9.3			52.1			55.6	52.3
Progression Factor	0.80	1.54		0.92	1.12			1.00			1.00	1.00
Incremental Delay, d2	4.2	0.5		2.2	0.4			0.0			5.1	0.1
Delay (s)	49.1	12.0		57.2	10.9			52.2			60.7	52.4
Level of Service	D	B		E	B			D			E	D
Approach Delay (s)		14.0			12.1			52.2			57.2	
Approach LOS		B			B			D			E	

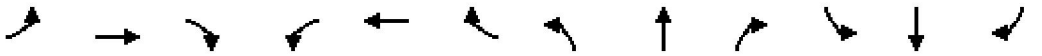
Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	65	180	313	1860	1484	98
Future Volume (vph)	65	180	313	1860	1484	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	5085	5038	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	5085	5038	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	196	340	2022	1613	107
RTOR Reduction (vph)	0	179	0	0	4	0
Lane Group Flow (vph)	71	17	340	2022	1716	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8				
Actuated Green, G (s)	10.7	10.7	30.5	110.3	75.3	
Effective Green, g (s)	11.7	11.7	31.0	112.3	77.3	
Actuated g/C Ratio	0.09	0.09	0.23	0.85	0.59	
Clearance Time (s)	5.0	5.0	4.5	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	156	140	415	4326	2950	
v/s Ratio Prot	c0.04		c0.19	0.40	c0.34	
v/s Ratio Perm		0.01				
v/c Ratio	0.46	0.12	0.82	0.47	0.58	
Uniform Delay, d1	57.1	55.4	47.8	2.4	17.2	
Progression Factor	1.00	1.00	0.98	0.96	0.38	
Incremental Delay, d2	2.1	0.4	10.7	0.3	0.6	
Delay (s)	59.2	55.8	57.5	2.7	7.2	
Level of Service	E	E	E	A	A	
Approach Delay (s)	56.7			10.6	7.2	
Approach LOS	E			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	395	1241	53	43	1123	627	283	1067	92	46	84	268
Future Volume (vph)	395	1241	53	43	1123	627	283	1067	92	46	84	268
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3497		1770	4504	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3497		1770	4504	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	429	1349	58	47	1221	682	308	1160	100	50	91	291
RTOR Reduction (vph)	0	0	34	0	0	191	0	5	0	0	268	0
Lane Group Flow (vph)	429	1349	24	47	1221	491	308	1255	0	50	114	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	21.4	52.5	52.5	6.1	37.2	37.2	43.9	44.4		8.0	8.5	
Effective Green, g (s)	21.9	54.5	54.5	6.6	39.2	39.2	44.4	46.4		8.5	10.5	
Actuated g/C Ratio	0.17	0.41	0.41	0.05	0.30	0.30	0.34	0.35		0.06	0.08	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	569	2099	653	171	1510	470	1154	1229		113	358	
v/s Ratio Prot	c0.12	0.27		0.01	0.24		0.09	c0.36		c0.03	0.03	
v/s Ratio Perm			0.02			c0.31						
v/c Ratio	0.75	0.64	0.04	0.27	0.81	1.04	0.27	1.02		0.44	0.32	
Uniform Delay, d1	52.5	31.0	23.1	60.4	42.9	46.4	31.9	42.8		59.5	57.4	
Progression Factor	1.27	1.45	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.2	1.4	0.1	0.9	4.8	53.5	0.1	31.2		2.8	0.5	
Delay (s)	72.0	46.3	23.2	61.3	47.7	99.9	32.1	74.0		62.2	57.9	
Level of Service	E	D	C	E	D	F	C	E		E	E	
Approach Delay (s)		51.5			66.3			65.8			58.4	
Approach LOS		D			E			E			E	

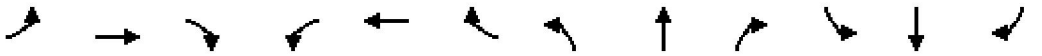
Intersection Summary			
HCM 2000 Control Delay	60.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Future (2023) Without Project – AM Peak Hour

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	665	524	1259	1179	0
Future Volume (vph)	0	665	524	1259	1179	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	1.00	0.88	0.97	
Frpb, ped/bikes		1.00	1.00	0.99	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	1863	2757	3433	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	1863	2757	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	723	570	1368	1282	0
RTOR Reduction (vph)	0	0	0	83	0	0
Lane Group Flow (vph)	0	723	570	1285	1282	0
Confl. Peds. (#/hr)				6		
Turn Type		NA	NA	pm+ov	Prot	
Protected Phases		6	1	3	3	
Permitted Phases				1		
Actuated Green, G (s)		56.0	56.0	120.0	64.0	
Effective Green, g (s)		58.0	58.0	124.0	66.0	
Actuated g/C Ratio		0.44	0.44	0.94	0.50	
Clearance Time (s)		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1555	818	2757	1716	
v/s Ratio Prot		0.20	c0.31	0.23	c0.37	
v/s Ratio Perm				0.23		
v/c Ratio		0.46	0.70	0.47	0.75	
Uniform Delay, d1		26.1	29.9	0.4	26.3	
Progression Factor		1.00	0.69	227.36	0.72	
Incremental Delay, d2		0.2	4.4	0.5	2.7	
Delay (s)		26.3	24.9	98.6	21.7	
Level of Service		C	C	F	C	
Approach Delay (s)		26.3	76.9		21.7	
Approach LOS		C	E		C	

Intersection Summary			
HCM 2000 Control Delay	49.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1788	40	46	1645	32	28	2	21	91	3	29
Future Volume (vph)	44	1788	40	46	1645	32	28	2	21	91	3	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1770	5069		1770	5071			1779	1583		1777	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.68	1.00		0.71	1.00
Satd. Flow (perm)	1770	5069		1770	5071			1271	1583		1320	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	1943	43	50	1788	35	30	2	23	99	3	32
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	20	0	0	28
Lane Group Flow (vph)	48	1985	0	50	1822	0	0	32	3	0	102	4
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		4
Actuated Green, G (s)	7.8	92.5		8.0	92.7			15.5	15.5		15.5	15.5
Effective Green, g (s)	8.8	94.5		9.0	94.7			16.5	16.5		16.5	16.5
Actuated g/C Ratio	0.07	0.72		0.07	0.72			0.12	0.12		0.12	0.12
Clearance Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	118	3628		120	3638			158	197		165	197
v/s Ratio Prot	0.03	c0.39		c0.03	0.36							
v/s Ratio Perm								0.03	0.00		c0.08	0.00
v/c Ratio	0.41	0.55		0.42	0.50			0.20	0.01		0.62	0.02
Uniform Delay, d1	59.1	8.8		59.0	8.2			51.8	50.6		54.8	50.7
Progression Factor	1.23	0.40		0.93	0.77			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.5		2.0	0.4			0.6	0.0		6.7	0.0
Delay (s)	74.7	4.0		56.7	6.8			52.5	50.7		61.5	50.7
Level of Service	E	A		E	A			D	D		E	D
Approach Delay (s)		5.6			8.1			51.7			58.9	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	89	1747	2	17	1694	11	2	0	2	75	1	28
Future Volume (vph)	89	1747	2	17	1694	11	2	0	2	75	1	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00			0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.95	1.00
Satd. Flow (prot)	1770	5084		1770	5080			1695			1775	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.90			0.73	1.00
Satd. Flow (perm)	1770	5084		1770	5080			1565			1353	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	1899	2	18	1841	12	2	0	2	82	1	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	0	27
Lane Group Flow (vph)	97	1901	0	18	1853	0	0	0	0	0	83	3
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	12.5	99.9		3.3	90.7			13.3			13.3	13.3
Effective Green, g (s)	13.0	101.9		3.8	92.7			14.3			14.3	14.3
Actuated g/C Ratio	0.10	0.77		0.03	0.70			0.11			0.11	0.11
Clearance Time (s)	4.5	6.0		4.5	6.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	174	3924		50	3567			169			146	171
v/s Ratio Prot	c0.05	0.37		0.01	c0.36							
v/s Ratio Perm								0.00			c0.06	0.00
v/c Ratio	0.56	0.48		0.36	0.52			0.00			0.57	0.02
Uniform Delay, d1	56.8	5.5		62.9	9.2			52.5			55.9	52.6
Progression Factor	0.94	0.69		1.06	0.41			1.00			1.00	1.00
Incremental Delay, d2	3.3	0.4		3.6	0.4			0.0			5.0	0.0
Delay (s)	56.6	4.2		70.5	4.2			52.5			60.9	52.6
Level of Service	E	A		E	A			D			E	D
Approach Delay (s)		6.7			4.9			52.5			58.7	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	170	364	181	1658	1399	103
Future Volume (vph)	170	364	181	1658	1399	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	5085	5033	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	5085	5033	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	396	197	1802	1521	112
RTOR Reduction (vph)	0	215	0	0	5	0
Lane Group Flow (vph)	185	181	197	1802	1628	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8				
Actuated Green, G (s)	20.4	20.4	20.5	100.6	75.6	
Effective Green, g (s)	21.4	21.4	21.0	102.6	77.6	
Actuated g/C Ratio	0.16	0.16	0.16	0.78	0.59	
Clearance Time (s)	5.0	5.0	4.5	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	286	256	281	3952	2958	
v/s Ratio Prot	0.10		c0.11	0.35	c0.32	
v/s Ratio Perm		c0.11				
v/c Ratio	0.65	0.71	0.70	0.46	0.55	
Uniform Delay, d1	51.8	52.3	52.5	5.1	16.6	
Progression Factor	1.00	1.00	0.93	0.89	0.42	
Incremental Delay, d2	5.0	8.6	7.0	0.3	0.6	
Delay (s)	56.7	60.9	55.7	4.9	7.5	
Level of Service	E	E	E	A	A	
Approach Delay (s)	59.6			9.9	7.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

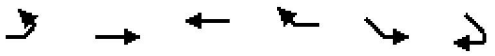
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	201	1156	313	121	734	47	90	62	12	386	1210	402
Future Volume (vph)	201	1156	313	121	734	47	90	62	12	386	1210	402
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3453		1770	4895	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3453		1770	4895	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	1257	340	132	798	51	98	67	13	420	1315	437
RTOR Reduction (vph)	0	0	161	0	0	35	0	12	0	0	42	0
Lane Group Flow (vph)	218	1257	179	132	798	16	98	68	0	420	1710	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	20.5	49.1	49.1	10.4	39.0	39.0	9.1	8.0		43.5	42.4	
Effective Green, g (s)	21.0	51.1	51.1	10.9	41.0	41.0	9.6	10.0		44.0	44.4	
Actuated g/C Ratio	0.16	0.39	0.39	0.08	0.31	0.31	0.07	0.08		0.33	0.34	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	546	1968	612	283	1579	491	249	261		590	1646	
v/s Ratio Prot	0.06	c0.25		0.04	c0.16		c0.03	0.02		0.24	c0.35	
v/s Ratio Perm			0.11			0.01						
v/c Ratio	0.40	0.64	0.29	0.47	0.51	0.03	0.39	0.26		0.71	1.04	
Uniform Delay, d1	49.8	32.9	28.0	57.8	37.2	31.7	58.4	57.5		38.5	43.8	
Progression Factor	1.07	1.10	1.81	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.5	1.1	1.2	1.2	0.1	1.0	0.5		4.0	32.9	
Delay (s)	53.6	37.5	51.6	59.0	38.4	31.8	59.4	58.0		42.5	76.7	
Level of Service	D	D	D	E	D	C	E	E		D	E	
Approach Delay (s)		42.1			40.8			58.8			70.1	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	54.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

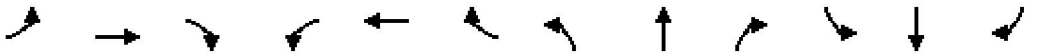
c Critical Lane Group

Future (2023) Without Project – PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	778	539	1300	1109	0
Future Volume (vph)	0	778	539	1300	1109	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	1.00	0.88	0.97	
Frpb, ped/bikes		1.00	1.00	0.99	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	1863	2746	3433	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	1863	2746	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	846	586	1413	1205	0
RTOR Reduction (vph)	0	0	0	86	0	0
Lane Group Flow (vph)	0	846	586	1327	1205	0
Confl. Peds. (#/hr)				6		
Turn Type		NA	NA	pm+ov	Prot	
Protected Phases		6	1	3	3	
Permitted Phases				1		
Actuated Green, G (s)		76.0	76.0	120.0	44.0	
Effective Green, g (s)		78.0	78.0	124.0	46.0	
Actuated g/C Ratio		0.59	0.59	0.94	0.35	
Clearance Time (s)		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		2091	1100	2746	1196	
v/s Ratio Prot		0.24	c0.31	0.17	c0.35	
v/s Ratio Perm				0.31		
v/c Ratio		0.40	0.53	0.48	1.01	
Uniform Delay, d1		14.5	16.1	0.4	43.0	
Progression Factor		1.00	1.10	270.70	0.83	
Incremental Delay, d2		0.1	1.5	0.5	27.4	
Delay (s)		14.6	19.3	120.7	63.3	
Level of Service		B	B	F	E	
Approach Delay (s)		14.6	91.0		63.3	
Approach LOS		B	F		E	

Intersection Summary			
HCM 2000 Control Delay	66.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1865	10	24	1949	48	41	2	51	86	1	22
Future Volume (vph)	47	1865	10	24	1949	48	41	2	51	86	1	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	5081		1770	5067			1778	1583		1775	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.60	1.00		0.69	1.00
Satd. Flow (perm)	1770	5081		1770	5067			1120	1583		1292	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	2027	11	26	2118	52	45	2	55	93	1	24
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	48	0	0	21
Lane Group Flow (vph)	51	2038	0	26	2169	0	0	47	7	0	94	3
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		4
Actuated Green, G (s)	8.0	96.1		5.1	93.2			14.8	14.8		14.8	14.8
Effective Green, g (s)	9.0	98.1		6.1	95.2			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.07	0.74		0.05	0.72			0.12	0.12		0.12	0.12
Clearance Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	120	3776		81	3654			134	189		154	189
v/s Ratio Prot	c0.03	c0.40		0.01	c0.43							
v/s Ratio Perm								0.04	0.00		c0.07	0.00
v/c Ratio	0.42	0.54		0.32	0.59			0.35	0.03		0.61	0.02
Uniform Delay, d1	59.0	7.3		60.9	9.0			53.4	51.4		55.2	51.2
Progression Factor	1.22	0.31		1.09	0.54			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.6	0.4		2.1	0.7			1.6	0.1		7.0	0.0
Delay (s)	73.8	2.6		68.8	5.5			55.0	51.4		62.2	51.3
Level of Service	E	A		E	A			D	D		E	D
Approach Delay (s)		4.3			6.2			53.1			59.9	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	106	1882	5	18	1610	11	1	1	7	88	0	64
Future Volume (vph)	106	1882	5	18	1610	11	1	1	7	88	0	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00			0.89			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.95	1.00
Satd. Flow (prot)	1770	5083		1770	5080			1653			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.75	1.00
Satd. Flow (perm)	1770	5083		1770	5080			1627			1399	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	2046	5	20	1750	12	1	1	8	96	0	70
RTOR Reduction (vph)	0	0	0	0	0	0	0	7	0	0	0	62
Lane Group Flow (vph)	115	2051	0	20	1762	0	0	3	0	0	96	8
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	13.9	97.3		4.8	88.2			14.4			14.4	14.4
Effective Green, g (s)	14.4	99.3		5.3	90.2			15.4			15.4	15.4
Actuated g/C Ratio	0.11	0.75		0.04	0.68			0.12			0.12	0.12
Clearance Time (s)	4.5	6.0		4.5	6.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	193	3823		71	3471			189			163	184
v/s Ratio Prot	c0.06	c0.40		0.01	0.35							
v/s Ratio Perm								0.00			c0.07	0.01
v/c Ratio	0.60	0.54		0.28	0.51			0.02			0.59	0.04
Uniform Delay, d1	56.0	6.8		61.5	10.1			51.6			55.3	51.8
Progression Factor	0.81	1.42		1.00	0.91			1.00			1.00	1.00
Incremental Delay, d2	4.3	0.5		1.8	0.4			0.0			5.4	0.1
Delay (s)	49.9	10.1		63.1	9.6			51.6			60.6	51.9
Level of Service	D	B		E	A			D			E	D
Approach Delay (s)		12.3			10.2			51.6			56.9	
Approach LOS		B			B			D			E	

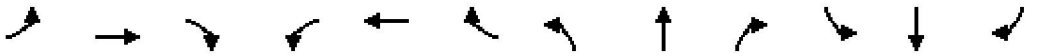
Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	65	180	308	1845	1460	98
Future Volume (vph)	65	180	308	1845	1460	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	5085	5037	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	5085	5037	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	196	335	2005	1587	107
RTOR Reduction (vph)	0	179	0	0	4	0
Lane Group Flow (vph)	71	17	335	2005	1690	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8				
Actuated Green, G (s)	10.7	10.7	30.5	110.3	75.3	
Effective Green, g (s)	11.7	11.7	31.0	112.3	77.3	
Actuated g/C Ratio	0.09	0.09	0.23	0.85	0.59	
Clearance Time (s)	5.0	5.0	4.5	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	156	140	415	4326	2949	
v/s Ratio Prot	c0.04		c0.19	0.39	c0.34	
v/s Ratio Perm		0.01				
v/c Ratio	0.46	0.12	0.81	0.46	0.57	
Uniform Delay, d1	57.1	55.4	47.7	2.4	17.1	
Progression Factor	1.00	1.00	0.98	1.06	0.35	
Incremental Delay, d2	2.1	0.4	9.9	0.3	0.6	
Delay (s)	59.2	55.8	56.7	2.9	6.6	
Level of Service	E	E	E	A	A	
Approach Delay (s)	56.7			10.6	6.6	
Approach LOS	E			B	A	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

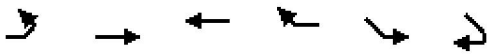


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	418	1303	55	46	1169	665	298	1132	98	49	89	283
Future Volume (vph)	418	1303	55	46	1169	665	298	1132	98	49	89	283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3497		1770	4505	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3497		1770	4505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	454	1416	60	50	1271	723	324	1230	107	53	97	308
RTOR Reduction (vph)	0	0	35	0	0	190	0	5	0	0	283	0
Lane Group Flow (vph)	454	1416	25	50	1271	533	324	1332	0	53	122	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	21.4	52.4	52.4	6.2	37.2	37.2	43.7	44.2		8.2	8.7	
Effective Green, g (s)	21.9	54.4	54.4	6.7	39.2	39.2	44.2	46.2		8.7	10.7	
Actuated g/C Ratio	0.17	0.41	0.41	0.05	0.30	0.30	0.33	0.35		0.07	0.08	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	569	2095	652	174	1510	470	1149	1223		116	365	
v/s Ratio Prot	c0.13	0.28		0.01	0.25		0.09	c0.38		c0.03	0.03	
v/s Ratio Perm			0.02			c0.34						
v/c Ratio	0.80	0.68	0.04	0.29	0.84	1.13	0.28	1.09		0.46	0.33	
Uniform Delay, d1	52.9	31.6	23.2	60.4	43.5	46.4	32.2	42.9		59.4	57.3	
Progression Factor	1.20	1.32	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.0	1.6	0.1	0.9	5.9	83.8	0.1	53.7		2.8	0.5	
Delay (s)	70.4	43.2	23.3	61.3	49.3	130.2	32.4	96.6		62.2	57.8	
Level of Service	E	D	C	E	D	F	C	F		E	E	
Approach Delay (s)		49.0			78.2			84.1			58.3	
Approach LOS		D			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	69.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

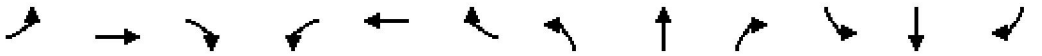
c Critical Lane Group

Future (2023) With Project – AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	666	526	1265	1181	0
Future Volume (vph)	0	666	526	1265	1181	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	1.00	0.88	0.97	
Frpb, ped/bikes		1.00	1.00	0.99	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	1863	2757	3433	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	1863	2757	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	724	572	1375	1284	0
RTOR Reduction (vph)	0	0	0	83	0	0
Lane Group Flow (vph)	0	724	572	1292	1284	0
Confl. Peds. (#/hr)				6		
Turn Type		NA	NA	pm+ov	Prot	
Protected Phases		6	1	3	3	
Permitted Phases				1		
Actuated Green, G (s)		56.0	56.0	120.0	64.0	
Effective Green, g (s)		58.0	58.0	124.0	66.0	
Actuated g/C Ratio		0.44	0.44	0.94	0.50	
Clearance Time (s)		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1555	818	2757	1716	
v/s Ratio Prot		0.20	c0.31	0.23	c0.37	
v/s Ratio Perm				0.23		
v/c Ratio		0.47	0.70	0.47	0.75	
Uniform Delay, d1		26.1	29.9	0.4	26.4	
Progression Factor		1.00	0.69	229.58	0.72	
Incremental Delay, d2		0.2	4.5	0.5	2.7	
Delay (s)		26.3	25.2	99.9	21.7	
Level of Service		C	C	F	C	
Approach Delay (s)		26.3	78.0		21.7	
Approach LOS		C	E		C	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	1791	40	46	1653	32	28	2	21	91	3	29
Future Volume (vph)	44	1791	40	46	1653	32	28	2	21	91	3	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1770	5069		1770	5071			1779	1583		1777	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.68	1.00		0.71	1.00
Satd. Flow (perm)	1770	5069		1770	5071			1271	1583		1320	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	1947	43	50	1797	35	30	2	23	99	3	32
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	20	0	0	28
Lane Group Flow (vph)	48	1989	0	50	1831	0	0	32	3	0	102	4
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		4
Actuated Green, G (s)	7.8	92.5		8.0	92.7			15.5	15.5		15.5	15.5
Effective Green, g (s)	8.8	94.5		9.0	94.7			16.5	16.5		16.5	16.5
Actuated g/C Ratio	0.07	0.72		0.07	0.72			0.12	0.12		0.12	0.12
Clearance Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	118	3628		120	3638			158	197		165	197
v/s Ratio Prot	0.03	c0.39		c0.03	0.36							
v/s Ratio Perm								0.03	0.00		c0.08	0.00
v/c Ratio	0.41	0.55		0.42	0.50			0.20	0.01		0.62	0.02
Uniform Delay, d1	59.1	8.8		59.0	8.2			51.8	50.6		54.8	50.7
Progression Factor	1.23	0.40		0.92	0.78			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.8	0.5		2.0	0.4			0.6	0.0		6.7	0.0
Delay (s)	74.6	4.0		56.6	6.9			52.5	50.7		61.5	50.7
Level of Service	E	A		E	A			D	D		E	D
Approach Delay (s)		5.6			8.2			51.7			58.9	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	89	1750	2	26	1694	11	2	0	2	75	1	28
Future Volume (vph)	89	1750	2	26	1694	11	2	0	2	75	1	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00			0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.95	1.00
Satd. Flow (prot)	1770	5084		1770	5080			1695			1775	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.90			0.73	1.00
Satd. Flow (perm)	1770	5084		1770	5080			1565			1353	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	1902	2	28	1841	12	2	0	2	82	1	30
RTOR Reduction (vph)	0	0	0	0	0	0	0	4	0	0	0	27
Lane Group Flow (vph)	97	1904	0	28	1853	0	0	0	0	0	83	3
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	12.5	98.0		5.2	90.7			13.3			13.3	13.3
Effective Green, g (s)	13.0	100.0		5.7	92.7			14.3			14.3	14.3
Actuated g/C Ratio	0.10	0.76		0.04	0.70			0.11			0.11	0.11
Clearance Time (s)	4.5	6.0		4.5	6.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	174	3851		76	3567			169			146	171
v/s Ratio Prot	c0.05	0.37		0.02	c0.36							
v/s Ratio Perm								0.00			c0.06	0.00
v/c Ratio	0.56	0.49		0.37	0.52			0.00			0.57	0.02
Uniform Delay, d1	56.8	6.2		61.4	9.2			52.5			55.9	52.6
Progression Factor	0.94	0.69		1.06	0.41			1.00			1.00	1.00
Incremental Delay, d2	3.3	0.4		2.5	0.4			0.0			5.0	0.0
Delay (s)	56.6	4.7		67.8	4.2			52.5			60.9	52.6
Level of Service	E	A		E	A			D			E	D
Approach Delay (s)		7.2			5.2			52.5			58.7	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	170	364	189	1680	1408	103
Future Volume (vph)	170	364	189	1680	1408	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	5085	5033	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	5085	5033	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	185	396	205	1826	1530	112
RTOR Reduction (vph)	0	215	0	0	5	0
Lane Group Flow (vph)	185	181	205	1826	1637	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8				
Actuated Green, G (s)	20.4	20.4	20.5	100.6	75.6	
Effective Green, g (s)	21.4	21.4	21.0	102.6	77.6	
Actuated g/C Ratio	0.16	0.16	0.16	0.78	0.59	
Clearance Time (s)	5.0	5.0	4.5	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	286	256	281	3952	2958	
v/s Ratio Prot	0.10		c0.12	0.36	c0.33	
v/s Ratio Perm		c0.11				
v/c Ratio	0.65	0.71	0.73	0.46	0.55	
Uniform Delay, d1	51.8	52.3	52.8	5.1	16.6	
Progression Factor	1.00	1.00	0.90	0.63	0.41	
Incremental Delay, d2	5.0	8.6	8.3	0.4	0.6	
Delay (s)	56.7	60.9	55.7	3.6	7.5	
Level of Service	E	E	E	A	A	
Approach Delay (s)	59.6			8.8	7.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

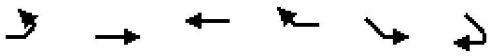
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	1176	314	121	742	47	90	62	12	386	1210	403
Future Volume (vph)	202	1176	314	121	742	47	90	62	12	386	1210	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3453		1770	4895	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3453		1770	4895	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	220	1278	341	132	807	51	98	67	13	420	1315	438
RTOR Reduction (vph)	0	0	159	0	0	35	0	12	0	0	42	0
Lane Group Flow (vph)	220	1278	182	132	807	16	98	68	0	420	1711	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	20.5	49.1	49.1	10.4	39.0	39.0	9.1	8.0		43.5	42.4	
Effective Green, g (s)	21.0	51.1	51.1	10.9	41.0	41.0	9.6	10.0		44.0	44.4	
Actuated g/C Ratio	0.16	0.39	0.39	0.08	0.31	0.31	0.07	0.08		0.33	0.34	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	546	1968	612	283	1579	491	249	261		590	1646	
v/s Ratio Prot	0.06	c0.25		0.04	c0.16		c0.03	0.02		0.24	c0.35	
v/s Ratio Perm			0.12			0.01						
v/c Ratio	0.40	0.65	0.30	0.47	0.51	0.03	0.39	0.26		0.71	1.04	
Uniform Delay, d1	49.9	33.1	28.0	57.8	37.3	31.7	58.4	57.5		38.5	43.8	
Progression Factor	1.07	1.10	1.76	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.5	1.1	1.2	1.2	0.1	1.0	0.5		4.0	33.1	
Delay (s)	53.7	37.8	50.6	59.0	38.5	31.8	59.4	58.0		42.5	76.9	
Level of Service	D	D	D	E	D	C	E	E		D	E	
Approach Delay (s)		42.1			40.9			58.8			70.2	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	54.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		

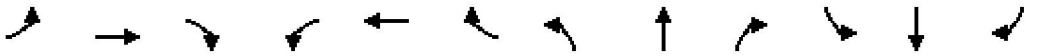
c Critical Lane Group

Future (2023) With Project – PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (vph)	0	780	540	1304	1115	0
Future Volume (vph)	0	780	540	1304	1115	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	
Lane Util. Factor		0.95	1.00	0.88	0.97	
Frpb, ped/bikes		1.00	1.00	0.99	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	
Flt Protected		1.00	1.00	1.00	0.95	
Satd. Flow (prot)		3539	1863	2746	3433	
Flt Permitted		1.00	1.00	1.00	0.95	
Satd. Flow (perm)		3539	1863	2746	3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	848	587	1417	1212	0
RTOR Reduction (vph)	0	0	0	86	0	0
Lane Group Flow (vph)	0	848	587	1331	1212	0
Confl. Peds. (#/hr)				6		
Turn Type		NA	NA	pm+ov	Prot	
Protected Phases		6	1	3	3	
Permitted Phases				1		
Actuated Green, G (s)		76.0	76.0	120.0	44.0	
Effective Green, g (s)		78.0	78.0	124.0	46.0	
Actuated g/C Ratio		0.59	0.59	0.94	0.35	
Clearance Time (s)		6.0	6.0	6.0	6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		2091	1100	2746	1196	
v/s Ratio Prot		0.24	c0.32	0.17	c0.35	
v/s Ratio Perm				0.32		
v/c Ratio		0.41	0.53	0.48	1.01	
Uniform Delay, d1		14.5	16.1	0.4	43.0	
Progression Factor		1.00	1.07	237.80	0.84	
Incremental Delay, d2		0.1	1.5	0.5	28.9	
Delay (s)		14.7	18.8	106.4	64.9	
Level of Service		B	B	F	E	
Approach Delay (s)		14.7	80.7		64.9	
Approach LOS		B	F		E	

Intersection Summary			
HCM 2000 Control Delay	62.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1873	10	24	1954	48	41	2	51	86	1	22
Future Volume (vph)	47	1873	10	24	1954	48	41	2	51	86	1	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1770	5081		1770	5067			1778	1583		1775	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.60	1.00		0.69	1.00
Satd. Flow (perm)	1770	5081		1770	5067			1120	1583		1292	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	2036	11	26	2124	52	45	2	55	93	1	24
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	48	0	0	21
Lane Group Flow (vph)	51	2047	0	26	2175	0	0	47	7	0	94	3
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4		4	4		4
Actuated Green, G (s)	8.0	96.1		5.1	93.2			14.8	14.8		14.8	14.8
Effective Green, g (s)	9.0	98.1		6.1	95.2			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.07	0.74		0.05	0.72			0.12	0.12		0.12	0.12
Clearance Time (s)	5.0	6.0		5.0	6.0			5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	120	3776		81	3654			134	189		154	189
v/s Ratio Prot	c0.03	c0.40		0.01	c0.43							
v/s Ratio Perm								0.04	0.00		c0.07	0.00
v/c Ratio	0.42	0.54		0.32	0.60			0.35	0.03		0.61	0.02
Uniform Delay, d1	59.0	7.3		60.9	9.0			53.4	51.4		55.2	51.2
Progression Factor	1.22	0.30		1.05	0.57			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.6	0.4		2.1	0.7			1.6	0.1		7.0	0.0
Delay (s)	73.8	2.6		66.3	5.8			55.0	51.4		62.2	51.3
Level of Service	E	A		E	A			D	D		E	D
Approach Delay (s)		4.3			6.5			53.1			59.9	
Approach LOS		A			A			D			E	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	106	1890	5	42	1610	11	1	1	7	88	0	64
Future Volume (vph)	106	1890	5	42	1610	11	1	1	7	88	0	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	0.91		1.00	0.91			1.00			1.00	1.00
Frt	1.00	1.00		1.00	1.00			0.89			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.95	1.00
Satd. Flow (prot)	1770	5083		1770	5080			1653			1770	1583
Flt Permitted	0.95	1.00		0.95	1.00			0.98			0.75	1.00
Satd. Flow (perm)	1770	5083		1770	5080			1627			1399	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	2054	5	46	1750	12	1	1	8	96	0	70
RTOR Reduction (vph)	0	0	0	0	0	0	0	7	0	0	0	62
Lane Group Flow (vph)	115	2059	0	46	1762	0	0	3	0	0	96	8
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	1	6		5	2			4			8	
Permitted Phases							4			8		8
Actuated Green, G (s)	13.9	94.4		7.7	88.2			14.4			14.4	14.4
Effective Green, g (s)	14.4	96.4		8.2	90.2			15.4			15.4	15.4
Actuated g/C Ratio	0.11	0.73		0.06	0.68			0.12			0.12	0.12
Clearance Time (s)	4.5	6.0		4.5	6.0			5.0			5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	193	3712		109	3471			189			163	184
v/s Ratio Prot	c0.06	c0.41		0.03	0.35							
v/s Ratio Perm								0.00			c0.07	0.01
v/c Ratio	0.60	0.55		0.42	0.51			0.02			0.59	0.04
Uniform Delay, d1	56.0	8.1		59.6	10.1			51.6			55.3	51.8
Progression Factor	0.83	1.32		1.01	0.86			1.00			1.00	1.00
Incremental Delay, d2	4.3	0.5		2.2	0.4			0.0			5.4	0.1
Delay (s)	50.7	11.2		62.2	9.1			51.6			60.6	51.9
Level of Service	D	B		E	A			D			E	D
Approach Delay (s)		13.3			10.5			51.6			56.9	
Approach LOS		B			B			D			E	

Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	65	180	313	1860	1484	98
Future Volume (vph)	65	180	313	1860	1484	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	
Frt	1.00	0.85	1.00	1.00	0.99	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1583	1770	5085	5038	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1583	1770	5085	5038	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	196	340	2022	1613	107
RTOR Reduction (vph)	0	179	0	0	4	0
Lane Group Flow (vph)	71	17	340	2022	1716	0
Turn Type	Prot	Perm	Prot	NA	NA	
Protected Phases	8		1	6	2	
Permitted Phases		8				
Actuated Green, G (s)	10.7	10.7	30.5	110.3	75.3	
Effective Green, g (s)	11.7	11.7	31.0	112.3	77.3	
Actuated g/C Ratio	0.09	0.09	0.23	0.85	0.59	
Clearance Time (s)	5.0	5.0	4.5	6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	156	140	415	4326	2950	
v/s Ratio Prot	c0.04		c0.19	0.40	c0.34	
v/s Ratio Perm		0.01				
v/c Ratio	0.46	0.12	0.82	0.47	0.58	
Uniform Delay, d1	57.1	55.4	47.8	2.4	17.2	
Progression Factor	1.00	1.00	0.98	0.96	0.38	
Incremental Delay, d2	2.1	0.4	10.7	0.3	0.6	
Delay (s)	59.2	55.8	57.5	2.7	7.2	
Level of Service	E	E	E	A	A	
Approach Delay (s)	56.7			10.6	7.2	
Approach LOS	E			B	A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	1316	56	46	1190	665	300	1132	98	49	89	284
Future Volume (vph)	420	1316	56	46	1190	665	300	1132	98	49	89	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3497		1770	4505	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3497		1770	4505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	457	1430	61	50	1293	723	326	1230	107	53	97	309
RTOR Reduction (vph)	0	0	36	0	0	190	0	5	0	0	284	0
Lane Group Flow (vph)	457	1430	25	50	1293	533	326	1332	0	53	122	0
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	21.4	52.4	52.4	6.2	37.2	37.2	43.7	44.2		8.2	8.7	
Effective Green, g (s)	21.9	54.4	54.4	6.7	39.2	39.2	44.2	46.2		8.7	10.7	
Actuated g/C Ratio	0.17	0.41	0.41	0.05	0.30	0.30	0.33	0.35		0.07	0.08	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	569	2095	652	174	1510	470	1149	1223		116	365	
v/s Ratio Prot	c0.13	0.28		0.01	0.25		0.09	c0.38		c0.03	0.03	
v/s Ratio Perm			0.02			c0.34						
v/c Ratio	0.80	0.68	0.04	0.29	0.86	1.13	0.28	1.09		0.46	0.33	
Uniform Delay, d1	53.0	31.7	23.2	60.4	43.7	46.4	32.3	42.9		59.4	57.3	
Progression Factor	1.21	1.33	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.3	1.7	0.1	0.9	6.5	83.8	0.1	53.7		2.8	0.5	
Delay (s)	71.2	44.0	23.3	61.3	50.2	130.2	32.4	96.6		62.2	57.8	
Level of Service	E	D	C	E	D	F	C	F		E	E	
Approach Delay (s)		49.7			78.5			84.0			58.3	
Approach LOS		D			E			F			E	

Intersection Summary			
HCM 2000 Control Delay	69.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	132.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

November 3, 2023

Mr. William Heistand
Chandler Partners
4116 W. Magnolia Boulevard, Suite 203
Burbank, California 91505

RE: Responses to Dudek Peer Review Comments on April 2021 Traffic Impact Analysis Report for Proposed Mixed-Use Project at 23755 Newhall Avenue in Santa Clarita

Dear Bill,

The following memorandum provides responses to the October 23, 2023 peer review conducted by Lisa Valdez of Dudek of the *Traffic Impact Analysis Report for Proposed 105-Unit Residential Apartment Development at 23755 Newhall Avenue* prepared by Hirsch/Green Transportation in April 2021. The subject traffic study is incorporated herein in its entirety by reference, while the Dudek peer review comment letter itself is provided in the attachments to this document.

Comment 1 – No response is necessary, as this comment states that Dudek concurs with the findings of the VMT screening analysis contained in the subject traffic impact study report, and that no further [VMT] analysis is required.

Comment 2 – This comment refers to Table 2 ("Project Trip Generation Estimates") on page 10 of the subject traffic impact study report, which contains a typographical error. Specifically, the "Subtotal Proposed Residential Trips" line of that table inadvertently omitted the trips associated with the proposed project's 35 townhome units. However, the total number of trips generated by the project shown in both the "Total Proposed Project Trips" and "Total Net New Site Trips" lines of the table used throughout the study, including all traffic impact-related analyses, are correct. Table 2 has been revised accordingly, and is provided in the attachments to this document.

Comment 3 – As indicated on page 28 of the subject project's Traffic Impact Analysis Report, the City's Traffic and Transportation Planning Division staff advised Hirsch/Green Transportation that the inclusion of potential traffic increases to the intersections and streets in the study area associated with specific "related projects" within the project vicinity beyond any such increases identified via the use of the "ambient growth factor" alone would not be necessary. An email exchange between Aaron Green of Hirsch/Green Transportation and Cesar Romo and Ian Pari of the City's Traffic and Transportation Planning Division (dated "March 30, 2021") documenting this conversation and confirming that, with the use of a 3.0-percent annual traffic growth factor to estimate future traffic conditions in the study area, the addition of any further traffic generated by individual "related projects" in the study area is not necessary is provided in the attachments.

Comment 4 – This comment refers to the results of the analysis of the potential traffic impacts of the proposed project shown in Table 5 on page 39 of the subject traffic impact study report, with specific attention to the reduction in intersection delay between the "Future Without Project" and "Future With Project" conditions identified at the study intersections of Newhall Avenue and Railroad Avenue (intersection #1), and Newhall Avenue and Valle del Oro (intersection #4) during the PM and AM peak hours, respectively. An explanation as to why some LOS values decrease with the addition of the new trips generated by the proposed project was provided and accepted by City staff. The (email) correspondence between Hirsch/Green Transportation and City staff regarding this explanation is attached to this document. Note that City staff requested that this language be added as a footnote to Table 5 should the traffic impact study report be revised. Although no revisions to the subject April 2021 traffic study were required, an updated version of Table 5 including the referenced footnote is also provided in the attachments.

Comment 5 - The "Traffic Study Trip Generation Calculations - Alternative 1 (Additional Retail)" trip generation table (dated "November 14, 2022" and attached to an email sent on that date to Willian Hiestand) inadvertently used the ITE Land Use 710 (General Office) trip generation rates for the proposed project's alternative potential 2,000 square foot office component, rather than the applicable ITE Land Use 712 (Small Office) trip generation rates. The commenter is correct that the ITE "Small Office" trip generation rate was also used to calculate the trips associated with the "office" space areas of the four live/work units evaluated in the April 2021 traffic study, and therefore, should also have been used for the November 14, 2022 analyses for consistency. The subject "Alternative 1 (Additional Retail)" trip generation table has been revised to reflect the use of the ITE 712 "Small Office" rates, and is provided in the attachments to this document. As shown in this updated table, the change from the application of the "General Office" versus the "Small Office" trip generation rates results in only nominal increases to the Net New Site Trips originally identified, with only 13 additional daily trips, including two additional AM peak hour and three additional PM peak hour trips. The resulting overall change in potential project-related trips between the original April 2021 study and the updated "Alternative 1 (Additional Retail)" project now becomes 146 net daily trips, including 10 net AM peak hour and 15 net PM peak hour trips (versus 133 net daily trips, eight net trips during the AM peak hour, and 12 net trips during the PM peak hour per the November 14, 2022 calculations). However, consistent with the conclusions of the November 14, 2022 analyses, these nominal changes in the project's trip generation levels are not expected to result in any new or previously unidentified significant traffic impacts compared to the results of the April 2021 project traffic study evaluations.

Comment 6 – As noted in the response to Comment 5, the nominal increases in traffic associated with the potential "retail" alternative project (using the ITE "Small Office" trip rates) compared to the project trip generation levels analyzed in the April 2021 traffic study would not be expected to change any of the conclusions of those previous evaluations. Specifically, the additional 10 AM

and 15 PM peak hour trips represent only about a 24% and 29% increase, respectively, from the project trips analyzed in the original traffic study (42 total AM and 52 total PM peak hour trips). Based on these increases, the “Existing with Project” PM peak hour project impact of 1.2 seconds at LOS E for the intersection of Newhall Avenue and Sierra Highway could potentially increase to about 1.5 or 1.6 seconds, which is still well below the City’s “significant” impact threshold of 2.0 seconds at LOS E conditions. Further, none of the other study intersections exhibit impacts that would be close to their respective "significant impact" thresholds. It should also be noted that the subject impact occurs only under the “Existing with Project” scenario; the impact at that same location and during the same peak hour period (PM peak hour) is only 0.2 seconds under the “Future with Project” conditions. Therefore, any potential impact at that location would be a "transient" impact that would become non-significant (by a wide margin) in the future due to the anticipated changes in traffic volumes and travel patterns. As such, any "mitigation" for this potential short-term impact would be only temporarily effective, and therefore unnecessary.

Please review the above and attached information and let us know if you have any questions.

Sincerely,

Ron Hirsch, P.E.
Principal

Attachments

ATTACHMENTS

Dudek Peer Review
Newhall Avenue Mixed-Use Project – Traffic and Parking Study
October 23, 2023

October 23, 2023

Erika Iverson, Senior Planner
City of Santa Clarita
23920 Valencia Boulevard
Santa Clarita, California 91355

Subject: Peer Review: Newhall Avenue Mixed-Use Project – Traffic and Parking

Dear Erika:

The following peer review has been provided by Dudek for the *Traffic Impact Analysis Report for the Proposed 105-Unit Residential Development* prepared by Hirsch/Green Transportation Consulting, Inc. (April 2021) and the Newhall Village Parking Demand Study prepared by Fehr & Peers (December 2, 2022). A summary of our comments is provided below.

Traffic Impact Analysis Report Comments

1. Dudek concurs with the findings of the VMT screening analysis. No further analysis is required.

2. The subtotal of Proposed Residential Trips presented in Table 2, Project Trip Generation, is incorrect. The subtotal repeats the estimated project trips for the 66 apartments, rather than providing a sum of the townhomes and apartments trips. Please update the table with correct number of trips. The total Proposed Project trips as shown is correct.

3. The third paragraph on Page 27 states that the City's Traffic and Transportation Planning Division staff indicated that… "the specific inclusion of traffic increases due to nearby "related projects" beyond the levels identified via the use of the "ambient growth factor" would not be appropriate". Please provide communication between City staff and the applicant supporting this statement. Typically, a future year analysis includes cumulative projects that are proposed and in the review process, but not yet fully approved; or, projects that have been approved, but not fully constructed or occupied. It is standard practice to include an analysis of cumulative projects even when the exact timing of development is not known. Based on a cursory review of the City's Major Development Projects website (Major Development Projects - Planning (santaclarita.gov)), there are approximately 30 major development projects either under construction, recently approved, or under review. A cumulative analysis may be warranted.

4. Table 5, Study Intersection Operations Analysis Summary, presents the LOS analysis with and without the project added traffic. Please provide an explanation as to why the intersection delay improves with the project added traffic at intersection #1 (Newhall Avenue and Railroad Avenue) during both peak hours and at intersection #4 (Newhall Avenue and Valle de Oro) during the morning peak hour.

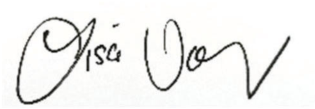
5. The revised Traffic Study Trip Generation Calculations- Alternative 1 (Additional Retail) dated November 14, 2022 presents a comparison of the trip generation calculations for the proposed project (with retail) and the "Currently Analyzed" project (without retail). The revised calculations apply the General Office building trip generation rate (ITE Land Use code 710) to the 2,000 square footage ground floor office of Building B-1. The Trip Generation Manual states that a General Office building with a gross floor area of 5,000 square feet or less is classified as a small office building (Land Use Code 712). This was also the rate applied to the "Currently Analyzed" project. Please clarify why the small office building rate wasn't used and update if needed. The small office building rate is higher than the General Office rate and would result in slightly more net new trips.

6. Although the net increase in trips of the proposed project is relatively small compared to the Currently Analyzed" project, it is recommended that at a minimum, a qualitative analysis be provided discussing how the increase in project trips affects the LOS findings. For example, intersection #5 (Newhall Avenue and Sierra Highway) is currently operating at LOS E, and would have a 1.2 second increase in delay with the "Currently Analyzed" project. Would the additional trips associated with the revised project increase the delay beyond the 2 second impact threshold?

Parking Demand Study Comments

1. Dudek concurs with the findings of the parking demand analysis. However, it is recommended that a Parking Summary table of the proposed number of parking spaces by Subarea and by use (e.g., residential, commercial, commercial/guest shared parking) be included on the site plan to more clearly show that the parking demand is being met on-site, consistent with the parking demand analysis findings.

Sincerely,



Lisa Valdez
Senior Transportation Planner

Comment #2
Updated Table 2 “Project Trip Generation Estimates” (from April 2021 Study)

Table 2
Project Trip Generation Estimates

Size/Use	Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Proposed Project							
Residential Components							
35 -unit Townhomes	256	4	12	16	13	7	20
66 -unit Apartments	359	6	18	24	18	11	29
Subtotal Proposed Residential Trips	*615*	*10*	*30*	*40*	*31*	*18*	*49*
Live/Work Component							
4 -unit Apartments	22	0	1	1	1	1	2
Live/Work Reduction (25% Daily; 50% Peak Hour)	(6)	0	(1)	(1)	(1)	0	(1)
Subtotal Live/Work Unit Residential Trips	*16*	*0*	*0*	*0*	*0*	*1*	*1*
800 sq. ft. Office (Total Live/Work Commercial Area)	13	2	0	2	1	1	2
Subtotal Proposed Live/Work Unit Trips	*29*	*2*	*0*	*2*	*1*	*2*	*3*
Total Proposed Project Trips	***644***	***12***	***30***	***42***	***32***	***20***	***52***
Existing Site Use (Removed)							
Various Commercial Uses	- - - - - - - - - - - - - nominal - - - - - - - - - - - - -						
Total Net New Site Trips	**644**	**12**	**30**	**42**	**32**	**20**	**52**

Comment #3
Emails Regarding Related Projects

From: aaron@hgtraffic.com <aaron@hgtraffic.com>
Sent: Tuesday, March 30, 2021 11:08 AM
To: 'Cesar Romo' <CROMO@santa-clarita.com>
Cc: 'Ian Pari' <IPARI@santa-clarita.com>; 'Ron Hirsch' <ron@hgtraffic.com>
Subject: RE: 23755 Newhall Avenue Apartments

Thanks, Cesar.

Ian and I spoke and it was determined that a 2% per year growth factor would be used to bring the 2019 traffic counts that you provided, to the current year (2021) equivalent.

Additionally, a 3% per year growth factor from existing (year 2021) to future (year 2023) would cover any traffic growth associated with potential "related projects" in the area, and that no specific list or trip generation calculations relative to "related projects" would be necessary.

Thanks again to both of you for all the help.

Best,

Aaron Green

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

13333 Ventura Boulevard, Suite 204
Sherman Oaks, California 91423
Phone: 818-325-0530 x-202
aaron@hgtraffic.com

From: Cesar Romo <CROMO@santa-clarita.com>
Sent: Tuesday, March 30, 2021 10:36 AM
To: aaron@hgtraffic.com
Cc: Ian Pari <IPARI@santa-clarita.com>; Ron Hirsch <ron@hgtraffic.com>
Subject: Re: 23755 Newhall Avenue Apartments

I'll let Ian respond to your question.

Sent from my iPhone

> On Mar 30, 2021, at 10:19 AM, aaron@hgtraffic.com wrote:
>
> Perfect! Thank you both.
>
> One more question… For the project that we worked on at [redacted], you did not require a listing and traffic generation associated with any potential "related projects" to be factored into the "future without Project" traffic volumes. Will the current project (23755 Newhall Avenue apartments) which is projected to be completed in 2023 also not need a "related projects" list and associated volumes? (Any assumed volumes associated with "related projects" would be included in the 2% growth factor that we will be including for "future (2023) traffic volumes".)

Thanks again!

Aaron Green

Hirsch/Green Transportation Consulting, Inc.

13333 Ventura Boulevard, Suite 204
Sherman Oaks, California 91423
Phone: 818-325-0530 x-202
aaron@hgtraffic.com

From: Ian Pari <IPARI@santa-clarita.com>
Sent: Tuesday, March 30, 2021 8:44 AM
To: aaron@hgtraffic.com
Cc: 'Ron Hirsch' <ron@hgtraffic.com>
Subject: RE: 23755 Newhall Avenue Apartments

These are 2019 volumes, so use 2% per year to factor them up to 2021.

_____

Ian Pari
Senior Traffic Engineer
City of Santa Clarita

Phone: (661) 284-1402
Email: ipari@santa-clarita.com
Web: http://www.santa-clarita.com

> On Mar 26, 2021, at 11:47 AM, aaron@hgtraffic.com wrote:
>
> Cesar,
>
> Are the "Existing" traffic volumes in the Synchro files current "2021" volumes? If not, what year are they and what growth factor should we apply to make them current?
>
> Best,
>
> **Aaron Green**
>
> Hirsch/Green Transportation Consulting, Inc.
>
> 13333 Ventura Boulevard, Suite 204
> Sherman Oaks, California 91423
> Phone: 818-325-0530 x-202
> aaron@hgtraffic.com
>
> ---
>
> **From:** Cesar Romo <CROMO@santa-clarita.com>
> **Sent:** Friday, March 26, 2021 9:48 AM
> **To:** aaron@hgtraffic.com; Ian Pari <IPARI@santa-clarita.com>

Cc: 'Ron Hirsch' <ron@hgtraffic.com>
Subject: RE: 23755 Newhall Avenue Apartments

See attached.

_____

Cesar Romo
Traffic Signal System Administrator
Traffic and Transportation Planning
City of Santa Clarita
Suite# 300
23920 Valencia Blvd.
Santa Clarita, CA 91355

Phone: (661) 286-4002
Cell: (661) 510-0831
Email: CROMO@santa-clarita.com
Web: http://www.santa-clarita.com

From: aaron@hgtraffic.com <aaron@hgtraffic.com>
Sent: Monday, March 22, 2021 2:08 PM
To: 'Ian Pari' <IPARI@santa-clarita.com>
Cc: 'Ron Hirsch' <ron@hgtraffic.com>
Subject: RE: Traffic Study (VMT) Policies and Procedures

Ian,

Thanks again for this information.

Could you please send us the Synchro files associated with the four intersections that you identified as “study intersections”?

Sincerely,

Aaron Green

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

13333 Ventura Boulevard, Suite 204
Sherman Oaks, California 91423
Phone: 818-325-0530 x-202
aaron@hgtraffic.com

From: Ian Pari <IPARI@santa-clarita.com>
Sent: Monday, March 22, 2021 10:50 AM
To: aaron@hgtraffic.com
Cc: 'Ron Hirsch' <ron@hgtraffic.com>
Subject: RE: Traffic Study (VMT) Policies and Procedures

I took a look at this, and I agree the project can be screened out under the “Low VMT Area” criteria.

As best I could, I superimposed Google Maps and Figure 7, Transit Screening Areas, from the F&P report. I think this project falls in between, but just outside, the Newhall Metrolink and Newhall P&R circles. So it would not qualify for screening under proximity to transit.

If you notice from the F&P report, the City still uses LOS for local impacts. For a project this size, we would want an HCM operational analysis of the following signalized intersections along Newhall Avenue.

Valle del Oro
Sierra Highway
Pine Street
Railroad Avenue

We use Synchro for all our signal timing and can provide the Synchro files, so you can use the correct cycle length and signal phasing in your analysis.

Please let me know if you have any further questions.

_____

Ian Pari
Senior Traffic Engineer
City of Santa Clarita

Phone: (661) 284-1402
Email: ipari@santa-clarita.com
Web: http://www.santa-clarita.com

From: aaron@hgtraffic.com <aaron@hgtraffic.com>
Sent: Friday, March 19, 2021 3:48 PM
To: Ian Pari <IPARI@santa-clarita.com>
Cc: 'Ron Hirsch' <ron@hgtraffic.com>
Subject: RE: Traffic Study (VMT) Policies and Procedures

Ian,

Thank you for the link to the Transportation Analysis Updates for the City of Santa Clarita.

After looking through this document, it appears that the project could be screened out under at least one of the screening criteria.

The project is an approximately 100-unit apartment development located at 23755 Newhall Avenue.

I think this location may be within a "Low VMT" area. Additionally, its proximity to a Transit Priority Area ("TPA") may also exclude the project from requiring a VMT study

Any other criteria that may apply should also be considered.

Is it appropriate for me to ask you to confirm that the project would be exempt from having to provide a VMT evaluation/study based on the screening criteria identified in the Fehr & Peers guidelines?

Once we determine if a VMT study is or is not required, we would then need to discuss the next steps in the development of any potential traffic study.

Thanks, and have a nice weekend.

Aaron Green

Hirsch/Green Transportation Consulting, Inc.

13333 Ventura Boulevard, Suite 204
Sherman Oaks, California 91423
Phone: 818-325-0530 x-202
aaron@hgtraffic.com

From: aaron@hgtraffic.com <aaron@hgtraffic.com>
Sent: Friday, March 19, 2021 9:47 AM
To: Ian Pari <IPARI@santa-clarita.com>
Cc: Ron Hirsch <ron@hgtraffic.com>
Subject: Traffic Study (VMT) Policies and Procedures

Hi, Ian.

We have been asked to develop another traffic study for a project located in the City of Santa Clarita and are aware that all Cities in the State of California are now required to conduct such evaluations using the Vehicle Miles Traveled ("VMT") methodology. Many of the jurisdictions that we work with have developed VMT calculators, or VMT tools, and new policies and procedures that are used for the associated CEQA-required VMT traffic studies.

As such, we are reaching out to you in hopes of receiving any information regarding the City of Santa Clarita's traffic study requirements and associated VMT calculator. If you have a "sample" study that has been prepared by utilization of the VMT methodology, that would be very helpful as well.

We look forward to hearing from you and working with you on this new project.

Best regards,

Aaron Green

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Sherman Oaks, California 91423
Phone: 818-325-0530 x-202
aaron@hgtraffic.com

Comment #4
Emails Regarding “With Project” Delay Value Anomalies
and
Updated Delay/LOS Table with Footnote

From: Ian Pari <IPARI@santa-clarita.com>
Sent: Wednesday, August 11, 2021 9:26 AM
To: aaron@hgtraffic.com
Cc: 'Ron Hirsch' <ron@hgtraffic.com>; 'William Hiestand' <william@chandlerpartners.com>
Subject: RE: 23755 Newhall Avenue Apartments

That's fine. Please include the LADOT approved language in the report after the LOS results table (or as a footnote), if it isn't already. Thanks.

I'll let you know if I have more comments in the next couple of weeks.

_____

Ian Pari
Senior Traffic Engineer
City of Santa Clarita

Phone: (661) 284-1402
Email: ipari@santa-clarita.com
Web: http://www.santa-clarita.com

From: aaron@hgtraffic.com <aaron@hgtraffic.com>
Sent: Tuesday, August 10, 2021 5:17 PM
To: Ian Pari <IPARI@santa-clarita.com>
Cc: 'Ron Hirsch' <ron@hgtraffic.com>; 'William Hiestand' <william@chandlerpartners.com>
Subject: RE: 23755 Newhall Avenue Apartments

Hi, Ian.

Yes, this seems to occur with some regularity with "delay based" analyses, and we have experienced similar issues on other projects in the past, including the project at 18300 Soledad Canyon Road who's traffic impact analysis was approved on November 25, 2019.

The explanation for this issue that has previously been accepted by the Los Angeles Department of Transportation ("LADOT") is as follows:

In some cases, an intersection may experience a decrease in the total average vehicle delay for the "With Project" scenario when compared to the "Without Project" conditions. This can occur when a project adds traffic to an intersection movement (or approach) that has minimal traffic and/or exhibits a delay value that is less than the overall average delay for the intersection, thereby resulting in a decrease in the weighted average delay for the intersection as a whole.

I hope this helps resolve your question.

Sincerely,

Aaron Green

HIRSCH GREEN
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Sherman Oaks, California 91423

Phone: 818-325-0530 x-202
aaron@hgtraffic.com

From: Ian Pari <IPARI@santa-clarita.com>
Sent: Tuesday, August 10, 2021 1:32 PM
To: aaron@hgtraffic.com
Cc: 'Ron Hirsch' <ron@hgtraffic.com>; 'William Hiestand' <william@chandlerpartners.com>
Subject: RE: 23755 Newhall Avenue Apartments

I do have one initial question. I quickly paged through the report and noticed that the delay actually improves at a couple intersections with project traffic. This seems unusual. I could dig into the Synchro output and figure it out, but thought you could save me the trouble and explain the results. Thanks.

_____

Ian Pari
Senior Traffic Engineer
City of Santa Clarita

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From: aaron@hgtraffic.com <aaron@hgtraffic.com>
Sent: Friday, July 23, 2021 10:24 AM
To: 'Ian Pari' <IPARI@santa-clarita.com>
Cc: William Hiestand <william@chandlerpartners.com>; Ron Hirsch (ron@hgtraffic.com) <ron@hgtraffic.com>
Subject: 23755 Newhall Avenue Apartments

Hello, Ian.

For your review and approval, I have attached our traffic impact analysis related to a proposed new residential development to be located at 23755 Newhall Avenue.

Please let us know if you have any questions or comments.

Best regards,

Aaron Green

HIRSCH GREEN
Hirsch/Green Transportation Consulting, Inc.

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aaron@hgtraffic.com

Table 5
Study Intersection Operations Analysis Summary (HCM Methodology per SYNCHRO)
Existing (2021) and Future (2023) Peak Hour Conditions

			Existing (2021)					Future (2023)				
			Without Project		With Project			Without Project		With Project		
Int. No.	Intersection	Peak Hour	Delay (sec.)	LOS	Delay (sec.)	LOS	Impact (sec.)	Delay (sec.)	LOS	Delay (sec.)	LOS	Impact (sec.)
1	Newhall Avenue	AM	42.9	D	42.7	D	-0.2	49.7	D	50.3	D	0.6
	and Railroad Avenue	PM	57.9	E	57.2	E	-0.7	66.8	E	62.2	E	-4.6
2	Newhall Avenue	AM	8.6	A	8.6	A	0.0	9.1	A	9.2	A	0.1
	and Pine Street/Arch Street	PM	7.4	A	7.7	A	0.3	7.8	A	7.9	A	0.1
3	Newhall Avenue	AM	7.0	A	7.4	A	0.4	7.4	A	7.8	A	0.4
	and Carl Court	PM	13.9	B	15.0	B	1.1	13.3	B	13.9	B	0.6
4	Newhall Avenue	AM	14.8	B	15.0	B	0.2	15.8	B	15.2	B	-0.6
	and Valle del Oro	PM	11.8	B	12.2	B	0.4	11.9	B	12.1	B	0.2
5	Newhall Avenue	AM	48.3	D	48.8	D	0.5	54.2	D	54.2	D	0.0
	and Sierra Highway	PM	59.7	E	60.9	E	1.2	69.1	E	69.3	E	0.2

Note:

"*" Indicates significant impact per City of Santa Clarita traffic study policies and procedures (if shown)

In some cases, an intersection may experience a decrease in the total average vehicle delay for the "With Project" scenario when compared to the "Withouth Project" conditions. This can occur when a project adds traffic to an intersection movement (or approach) that has minimal traffic and/or exhibits a delay value that is less than the overall average delay for the intersection, thereby resulting in a decrease in the weighted average delay for the intersection as a whole.

Comment #5
Updated “Alternative 1 (Additional Retail)” Project Trip Generation Table

23755 Newhall Avenue Residential Project
REVISED Traffic Study Trip Generation Calculations - Alternative 1 (Additional Retail)

Project Description

Proposed Project

70	-unit	Apartments (Mid-Rise)
36	-unit	Townhomes (Low-Rise)
2,000	sq. ft.	General Office (Building B-1 Ground Floor)
1,500	sq. ft.	General Retail (Building B-1 Ground Floor)
500	sq. ft.	Restaurant (Building B-1 Ground Floor)

Existing Uses (Removed)

Various Commercial Uses

Project and Existing Uses Trip Generation Rates and Assumptions:

Multifamily Housing (Low-Rise) - per dwelling unit (ITE Land Use 220) - *Project Townhome Component*

Daily Trips: T = 7.32 (U)
AM Peak Hour: T = 0.46 (U); I/B = 23%, O/B = 77%
PM Peak Hour: T = 0.56 (U); I/B = 63%, O/B = 37%

Multifamily Housing (Mid-Rise) - per dwelling unit (ITE Land Use 221) - *Project Apartment Component*

Daily Trips: T = 5.44 (U)
AM Peak Hour: T = 0.36 (U); I/B = 26%, O/B = 74%
PM Peak Hour: T = 0.44 (U); I/B = 61%, O/B = 39%

Small Office Building - per 1,000 Gross Square Feet (ITE Land Use 712)

Daily Trips: T = 16.19 (A)
AM Peak Hour: T = 1.92 (A); I/B = 82%, O/B = 18%
PM Peak Hour: T = 2.45 (A); I/B = 32%, O/B = 68%

Shopping Center - per 1,000 Gross Square Feet (ITE Land Use 820)

Daily Trips: T = 37.75 (A)
AM Peak Hour: T = 0.94 (A); I/B = 62%, O/B = 38%
PM Peak Hour: T = 3.81 (A); I/B = 48%, O/B = 52%

High-Turnover (Sit Down) Restaurant - per 1,000 Gross Square Feet (ITE Land Use 932)

Daily Trips: T = 112.18 (A)
AM Peak Hour: T = 9.94 (A); I/B = 55%, O/B = 45%
PM Peak Hour: T = 9.77 (A); I/B = 62%, O/B = 38%

Where: T = Trip Ends
U = Number of Residential Units
A = Gross Floor Area in 1,000 sq. ft.
I/B = Inbound Trip Percentage
O/B = Outbound Trip Percentage

---

* Notes:

All trip generation rates and other data per 10th Ed. ITE *Trip Generation* , unless noted.

Trip Generation Adjustments:

None for any existing or proposed uses

23755 Newhall Avenue Residential Project
REVISED Traffic Study Trip Generation Calculations - Alternative 1 (Additional Retail)

Project Trip Generation Estimates:

Size/Use	Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Proposed Project							
Residential Components							
36 -unit Townhomes	264	4	13	17	13	7	20
70 -unit Apartments	381	6	19	25	19	12	31
Total Proposed Residential Component Trips	*645*	*10*	*32*	*42*	*32*	*19*	*51*
Commercial Components							
2,000 sq. ft. General Office (Building B-1 Ground Floor)	32	3	1	4	2	3	5
1,500 sq. ft. General Retail (Building B-1 Ground Floor)	57	1	0	1	3	3	6
500 sq. ft. Restaurant (Building B-1 Ground Floor)	56	3	2	5	3	2	5
Total Proposed Commercial Component Trips Trips	*145*	*7*	*3*	*10*	*8*	*8*	*16*
Total Proposed Project Trips	***790***	***17***	***35***	***52***	***40***	***27***	***67***
Existing Site Use (Removed)							
Various Commercial Uses	---------- nominal ----------						
Total Net New Site Trips	**790**	**17**	**35**	**52**	**40**	**27**	**67**

Comparison of Revised Project vs. Currently-Analyzed Project

	Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Total Project Trips per April 2021 Traffic Study	644	12	30	42	32	20	52
Residential Component Trips	*631*	*10*	*30*	*40*	*31*	*19*	*50*
Commercial Component Trips	*13*	*2*	*0*	*2*	*1*	*1*	*2*
Net Change in Total Project Trips from April 2021 Study	146	5	5	10	8	7	15
Net Change in Residential Component Trips	*14*	*0*	*2*	*2*	*1*	*0*	*1*
Net Change in Commercial Component Trips	*132*	*5*	*3*	*8*	*7*	*7*	*14*