

Appendix G

Traffic Impact Study

TRANSPORTATION IMPACT STUDY
**ZONE 2 LANDSLIDE MORATORIUM –
PORTUGUESE BEND PROJECT**
City of Rancho Palos Verdes, California
January 18, 2019

Prepared for:

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TRANSPORTATION IMPACT STUDY
ZONE 2 LANDSLIDE MORATORIUM -
PORTUGUESE BEND PROJECT
City of Rancho Palos Verdes, California
January 18, 2019

1.0 INTRODUCTION

This transportation impact study addresses the potential traffic impacts associated with the proposed Zone 2 Landslide Moratorium project. The proposed project is located in the Portuguese Bend area of the City of Rancho Palos Verdes, California. The City of Rancho Palos Verdes is considering revisions to its Landslide Moratorium Ordinance that would facilitate the future development of single-family residences on undeveloped lots within a portion of the City's Portuguese Bend community (i.e., Zone 2). The proposed Zone 2 Landslide Moratorium - Portuguese Bend project site area and general vicinity are shown in **Figure 1-1**.

This report documents the findings and recommendations of a transportation impact analysis prepared by Linscott, Law & Greenspan, Engineers and summarizes the potential traffic impacts associated with the proposed project. The traffic analysis evaluates the existing operating conditions at seven key study intersections within the project vicinity, estimates the trip generation potential of the proposed project, and forecasts future operating conditions without and with the proposed project. Where necessary, intersection improvements and/or mitigation measures are identified. This report has been prepared in consultation with City of Rancho Palos Verdes staff and presents findings for future year operating conditions (Year 2030) pursuant to the requirements of City staff.

This transportation report satisfies the traffic impact study requirements of the City of Rancho Palos Verdes and is consistent with the *2010 Congestion Management Program for Los Angeles County*¹. The specific parameters for this traffic study were developed in conjunction with City of Rancho Palos Verdes staff. The project site has been visited and observed and the adjacent area roadways, intersections, and existing parking conditions have been inventoried. Existing peak hour traffic information has been collected at the seven study intersections on a typical weekday (i.e., Tuesday, Wednesday, or Thursday) for use in the preparation of intersection Level of Service calculations. Information concerning cumulative projects (planned and/or approved) in the vicinity of the proposed project has been researched at the Cities of Rancho Palos Verdes, Palos Verdes Estates, Rolling Hills, Rolling Hills Estates, and Los Angeles, as well as other traffic studies prepared for projects in the vicinity. Based on this research, 22 related projects are planned in the project study area. These 22 planned and/or approved related projects were therefore considered in the cumulative traffic analysis for this project.

¹ *2010 Congestion Management Program for Los Angeles County*, Los Angeles County Metropolitan Transportation Authority, October 2010.



MAP SOURCE: RAND MCNALLY & COMPANY

XX STUDY INTERSECTION

NOT TO SCALE

X STUDY STREET SEGMENT

CLOUD SYMBOL PROJECT AREA

FIGURE 1-1
VICINITY MAP

ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

LINSCOTT, LAW & GREENSPAN, engineers

This transportation report analyzes existing and future weekday AM, School PM and PM peak hour traffic operations for future-term (Year 2030) traffic conditions upon completion of the proposed Zone 2 Landslide Moratorium - Portuguese Bend project. Peak hour traffic forecasts for the future horizon years have been projected by increasing existing traffic volumes by an annual growth rate of 0.6 percent (0.6%) per year and adding traffic volumes expected to be generated by the 22 related projects.

1.1 Study Area

Seven study intersections have been identified for evaluation during the weekday morning, School PM and PM commuter peak hour conditions based upon coordination with City of Rancho Palos Verdes staff. The seven study intersections provide local access to the study area and define the extent of the boundaries for this traffic impact analysis. Further discussion of the existing street system and study area is provided in Section 4.1 herein.

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

- a. Immediately adjacent or in close proximity to the project site;
- b. In the vicinity of the project site that are documented to have current or projected future adverse operational issues; and
- c. In the vicinity of the project site that are forecast to experience a relatively greater percentage of project-related vehicular turning movements (e.g., at freeway ramp intersections).

The locations selected for analysis were based on the above criteria, forecast project peak hour vehicle trip generation, anticipated distribution of project vehicle trips and existing intersection/corridor operations. The seven intersections listed below provide local access to the study area and define the extent of the boundaries for this traffic impact investigation.

1. Hawthorne Boulevard/Via Rivera
2. Tramonto Drive-Seahill Drive/Palos Verdes Drive South
3. Barkentine Road/Palos Verdes Drive South
4. Narcissa Drive/Palos Verdes Drive South
5. Peppertree Drive/Palos Verdes Drive South

6. Forrestal Drive/Palos Verdes Drive South

7. Palos Verdes Drive East/Palos Verdes Drive South

The Volume-Capacity and Level of Service calculations for these key locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects and the proposed Zone 2 Landslide Moratorium - Portuguese Bend project. When necessary, this report recommends intersection improvements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service, and/or to reduce a significant project impact to less than significant levels.

The following components are included as part of this traffic analysis:

- Existing traffic counts,
- Estimated project traffic generation/distribution/assignment,
- Estimated cumulative project traffic generation/distribution/assignment,
- Weekday AM, School PM and PM peak hour capacity analyses for existing conditions,
- Weekday AM, School PM and PM peak hour capacity analyses for existing with project conditions,
- Weekday AM, School PM and PM peak hour capacity analyses for future (Year 2030) conditions without and with project traffic,
- Project-specific improvements, where necessary, and
- Congestion management program traffic impact assessment.

2.0 PROJECT DESCRIPTION

2.1 Project Location

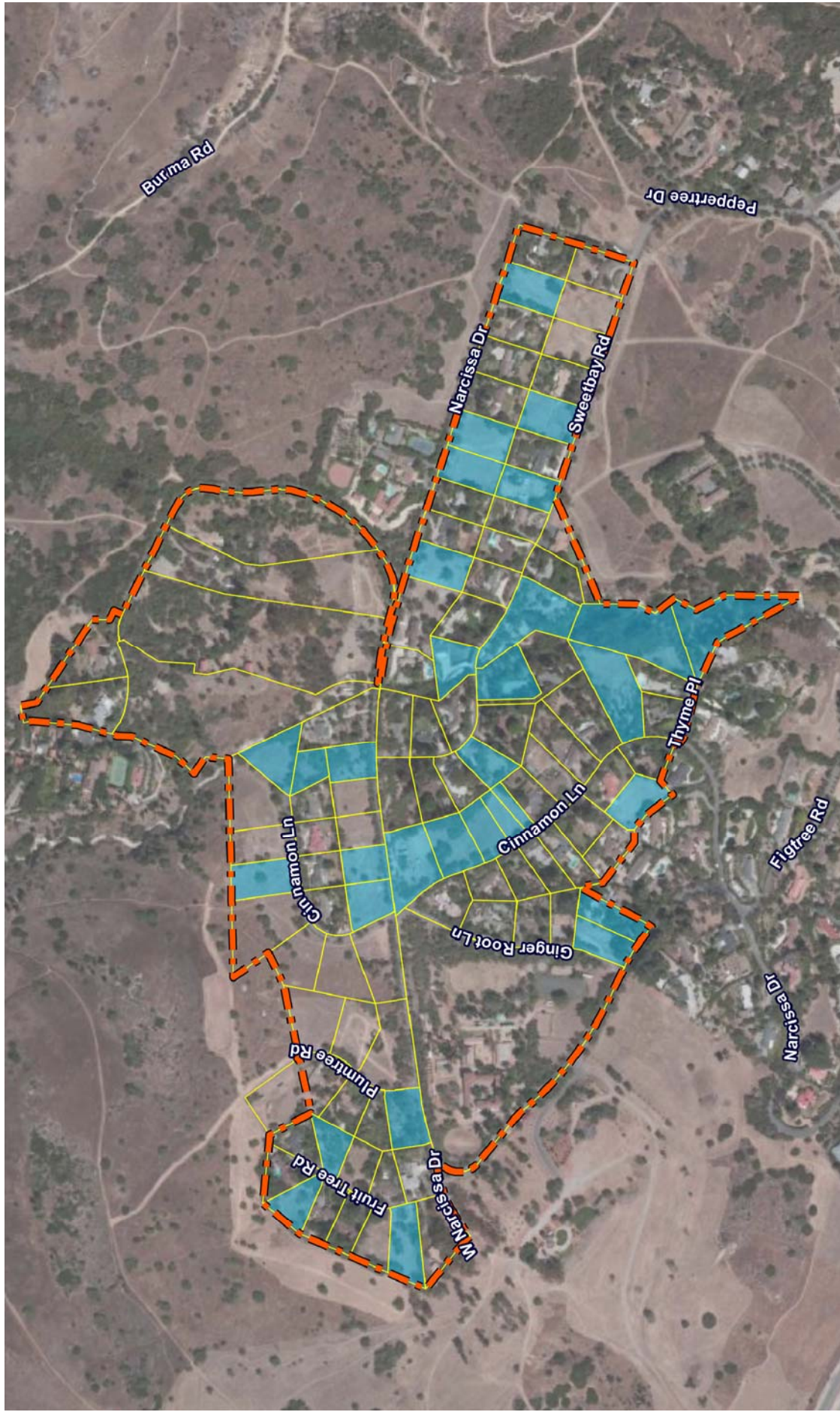
The proposed ordinance revisions would apply to the approximately 112-acre “Zone 2 Landslide Moratorium Ordinance” area, located north of the Narcissa Drive/Palos Verdes Drive South intersection in the Portuguese Bend area of the Palos Verdes Peninsula, within the City of Rancho Palos Verdes, County of Los Angeles, California. This area, located on the hills above the south-central coastline of the City, is within the City’s larger (approximately 1,200-acre) Landslide Moratorium Area (LMA). Zone 2 consists of 111 individual lots. Of these, 69 have been developed with residences and accessory structures (including the 5 Monks Plaintiffs’ Lots), 11 have obtained Planning entitlements for development (via Exception “P”) and 31 lots remain undeveloped. These latter 31 lots are the focus of this transportation impact study and the project’s environmental impact report. The proposed Zone 2 Landslide Moratorium - Portuguese Bend project site area and general vicinity are shown in *Figure 1-1*. The locations of the 31 undeveloped lots within the Portuguese Bend community under consideration by the City is displayed in *Figure 2-1*.

2.2 Current Land Use

Of the approximately 111 lots on the 112-acre project area (the Zone 2 area), the vast majority of the developed lots are improved with single-family residences, most dating from the 1950s, and related accessory structures and uses. The largest developed lot in Zone 2 is occupied by the Portuguese Bend Riding Club, a nonconforming commercial stable that was established prior to the City’s incorporation in 1973. Private streets within Zone 2 are maintained by the Portuguese Bend Community Association. The majority of the undeveloped lots contain non-native vegetation, and some have small, non-habitable structures (e.g., sheds, stables, fences, etc.) for equestrian or horticultural uses. The lots are generally between one-quarter acre and one acre or more in size.

2.3 Surrounding Land Uses

The approximately 112-acre Zone 2 area is primarily surrounded by open space and semi-rural residential development. To the northeast of the project area are developed residential lots in the Portuguese Bend community as well as City-owned open space in the Portuguese Bend Reserve of the Palos Verdes Nature Preserve, both of which are within Zone 1 of the Landslide Moratorium Area. To the northwest and west of the project area are developed residential lots in the Portuguese Bend community and vacant, residentially-zoned land (Upper and Lower Filiorum) which are located in Zone 1 of the Landslide Moratorium Area. To the south, southeast and east of the project area are developed and undeveloped residential lots in the Portuguese Bend community and located in Zone 5 (the area affected by the 1978 Abalone Cove landslide), Zone 6 (the active Portuguese Bend landslide area) and Zone 3 (located between Altamira Canyon and the westerly edge of the Portuguese Bend landslide area). Individual lots that would gain development potential as a result of the proposed project are located throughout Zone 2, and are therefore surrounded by the uses described above as well as other lots, both developed and undeveloped, in Zone 2.



SOURCE: RINCON CONSULTANTS, INC.

FIGURE 2-1
LOCATION OF PROJECT
UNDEVELOPED LOTS
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

LEGEND:

NOT TO SCALE

Project Boundary

Vacant or Underdeveloped, Potentially Developable under Proposed Ordinance Revisions

LINSCOTT, LAW & GREENSPAN, engineers

2.4 Project Characteristics

2.4.1 Project Background

In 2002, a group of Portuguese Bend property owners filed a ME application to exclude their undeveloped lots within the area known as Zone 2 from the LMA. Shortly after this application was deemed incomplete for processing, the applicants filed suit against the City. As part of the decision on the case (*Monks v. City of Rancho Palos Verdes*), the City has been ordered to remove regulatory impediments in its Municipal Code that prevent the development of the 16 *Monks* plaintiffs' lots. The City began this process with an Ordinance to allow the *Monks* plaintiffs to apply for Landslide Moratorium Exceptions (LMEs) for their lots. As of November 2018, five (5) *Monks* plaintiffs lots have been developed and the remaining eleven (11) *Monks* plaintiffs have obtained Planning entitlements to develop their lots. The City now desires to consider broader revisions to the Landslide Moratorium Ordinance that could also permit the owners of the other 31 undeveloped lots in Zone 2 to be developed with new residences. This would result in the possible future development of up to 31 new residences on existing legal lots in Zone 2 within the Portuguese Bend community.

2.4.2 Project Description

Landslide Moratorium Ordinance Revisions. Section 15.20.040 of the Rancho Palos Verdes Municipal Code establishes the process for requesting exceptions from the City's landslide moratorium regulations. The current (amended in 2009) Municipal Code Section 15.20.040(P) includes the following category of exception to the moratorium on "the filing, processing, approval or issuance of building, grading or other permits" within the existing landslide moratorium area:

The moratorium shall not be applicable to any of the following...

...P. The construction of residential buildings, accessory structures, and grading totaling less than one thousand cubic yards of combined cut and fill and including no more than fifty cubic yards of imported fill material on the sixteen undeveloped lots in Zone 2 of the "Landslide Moratorium Area" as outlined in green on the landslide moratorium map on file in the Director's office, identified as belonging to the plaintiffs in the case "Monks v. City of Rancho Palos Verdes, 167 Cal. App. 4th 263, 84 Cal. Rptr. 3d 75 (Cal. App. 2 Dist., 2008)"; provided, that a landslide moratorium exception permit is approved by the Director, and provided that the project complies with the criteria set forth in Section 15.20.050 of this Chapter. Such projects shall qualify for a landslide moratorium exception permit only if all applicable requirements of this Code are satisfied, and the parcel is served by a sanitary sewer system. Prior to the issuance of a landslide moratorium exception permit, the applicant shall submit to the Director any geological or geotechnical studies reasonably required by the City to demonstrate to the satisfaction of the City geotechnical staff that the proposed project will not aggravate the existing situation.

The proposed landslide moratorium ordinance revisions would revise the language of this section to encompass all 31 undeveloped lots in Zone 2, rather than restricting it to only the *Monks* plaintiffs' lots. This would allow for the future submittal of LMEs for all of these undeveloped lots. It should

be noted, however, that the granting of an LME does not constitute approval of a specific project request, but simply grants the property owner the ability to submit the appropriate application(s) for consideration of a specific project request.

Future Development Potential. The potential granting of up to 31 LME requests under the proposed ordinance revisions would permit individual property owners to then apply for individual entitlements to develop their lots. The undeveloped lots within Zone 2 are held in multiple private ownerships so the timing and scope of future development is not known. For the purposes of the Environmental Impact Report (EIR), it is assumed that development would occur over a period of at least 10 years from adoption of the ordinance revisions in a manner consistent with the private architectural standards adopted by the Portuguese Bend Community Association and the City's underlying RS-1 and RS-2 zoning regulations. Therefore, the future development assumptions for Zone 2 include the following:

- Thirty-one single-story, ranch-style residences with attached or detached three-car garages, with minimum living area of 1,500 square feet and maximum living area of 4,000 square feet or 15% of gross lot area, whichever is less;
- Less than 1,000 cubic yards of grading (cut and fill combined) per lot, with no more than 50 cubic yards of imported fill and up to 1,000 cubic yards of export per lot;
- Maximum 25% (RS-1) or 40% (RS-2) net lot coverage;
- Maximum building height of 16 feet for residences and 12 feet for detached accessory structures;
- Minimum front setbacks of 20 feet, minimum rear setbacks of 15 feet, minimum street-side setbacks of 10 feet, and minimum interior side setbacks of five feet, with setbacks along private street rights-of-way measured from the easement line rather than the property line; and,
- No subdivision of existing lots within Zone 2.

As noted above, the City has been ordered to remove regulatory impediments in its Municipal Code that prevent the development of the 16 *Monks* plaintiffs' lots. This was accomplished by the 2009 addition to the moratorium exceptions, cited above. As of November 2018, five *Monks* plaintiffs' lots have been developed, and the remaining 11 *Monks* plaintiffs' lots have obtained planning entitlements. Therefore, this transportation impact study considers the potential environmental impacts of build-out of the 31 undeveloped lots under the parameters listed above.

3.0 PROJECT SITE ACCESS AND CIRCULATION

Access to the existing Portuguese Bend community of Rancho Palos Verdes is provided via Narcissa Drive and Peppertree Drive. All streets in the Portuguese Bend community are private, and the community itself is gated. The gates restricting access to the community on Narcissa Drive and Peppertree Drive are set back approximately 190 and 90 feet from Palos Verdes Drive South, respectively. The following lane configurations are provided at the existing access locations for the community:

- Narcissa Drive/Palos Verdes Drive South
 - Eastbound Approach: One left-turn lane and one shared through/right-turn lane
 - Westbound Approach: One left-turn lane, one through lane and one right-turn lane
 - Southbound Approach: One shared left-turn/through lane and one right-turn lane
- Peppertree Drive/Palos Verdes Drive South
 - Eastbound Approach: One left-turn lane and one through lane
 - Westbound Approach: One through lane and one right-turn lane
 - Southbound Approach: One left-turn lane and one right-turn lane

No changes to the existing Portuguese Bend community site access and circulation scheme are planned as part of the proposed project. Aerial photographs of the two subject Portuguese Bend community access intersections are displayed in **Figure 3-1**.



Palos Verdes Drive South and Narcissa Drive



Palos Verdes Drive South and Peppertree Drive



NOT TO SCALE

SOURCE: GOOGLE EARTH

FIGURE 3-1 PORTUGUESE BEND COMMUNITY ACCESS INTERSECTIONS

LINSCOTT, LAW & GREENSPAN, engineers

ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

4.0 EXISTING CONDITIONS

4.1 Existing Street System

The local network of streets serving the proposed project study area includes Palos Verdes Drive West, Palos Verdes Drive South and Hawthorne Boulevard. All of the seven study intersections selected for analysis are controlled by stop signs with the stop signs facing the minor street approaches. The existing roadway configurations and intersection controls at the seven study intersections are displayed in **Figure 4-1**.

4.1.1 Roadway Classifications

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

- *Freeways* are limited-access and high-speed travel ways included in the state and federal highway systems. Their purpose is to carry regional through-traffic. Access is provided by interchanges with typical spacing of one mile or greater. No local access is provided to adjacent land uses.
- *Arterial* roadways are major streets that primarily serve through-traffic and provide access to abutting properties as a secondary function. Arterials are generally designed with two to six travel lanes and their major intersections are signalized. This roadway type is divided into two categories: principal and minor arterials. Principal arterials are typically four-or-more lane roadways and serve both local and regional through-traffic. Minor arterials are typically two-to-four lane streets that service local and commute traffic.
- *Collector* roadways are streets that provide access and traffic circulation within residential and non-residential (e.g., commercial and industrial) areas. Collector roadways connect local streets to arterials and are typically designed with two through travel lanes (i.e., one through travel lane in each direction) that may accommodate on-street parking. They may also provide access to abutting properties.
- *Local* roadways distribute traffic within a neighborhood, or similar adjacent neighborhoods, and are not intended for use as a through-street or a link between higher capacity facilities such as collector or arterial roadways. Local streets are fronted by residential uses and do not typically serve commercial uses.

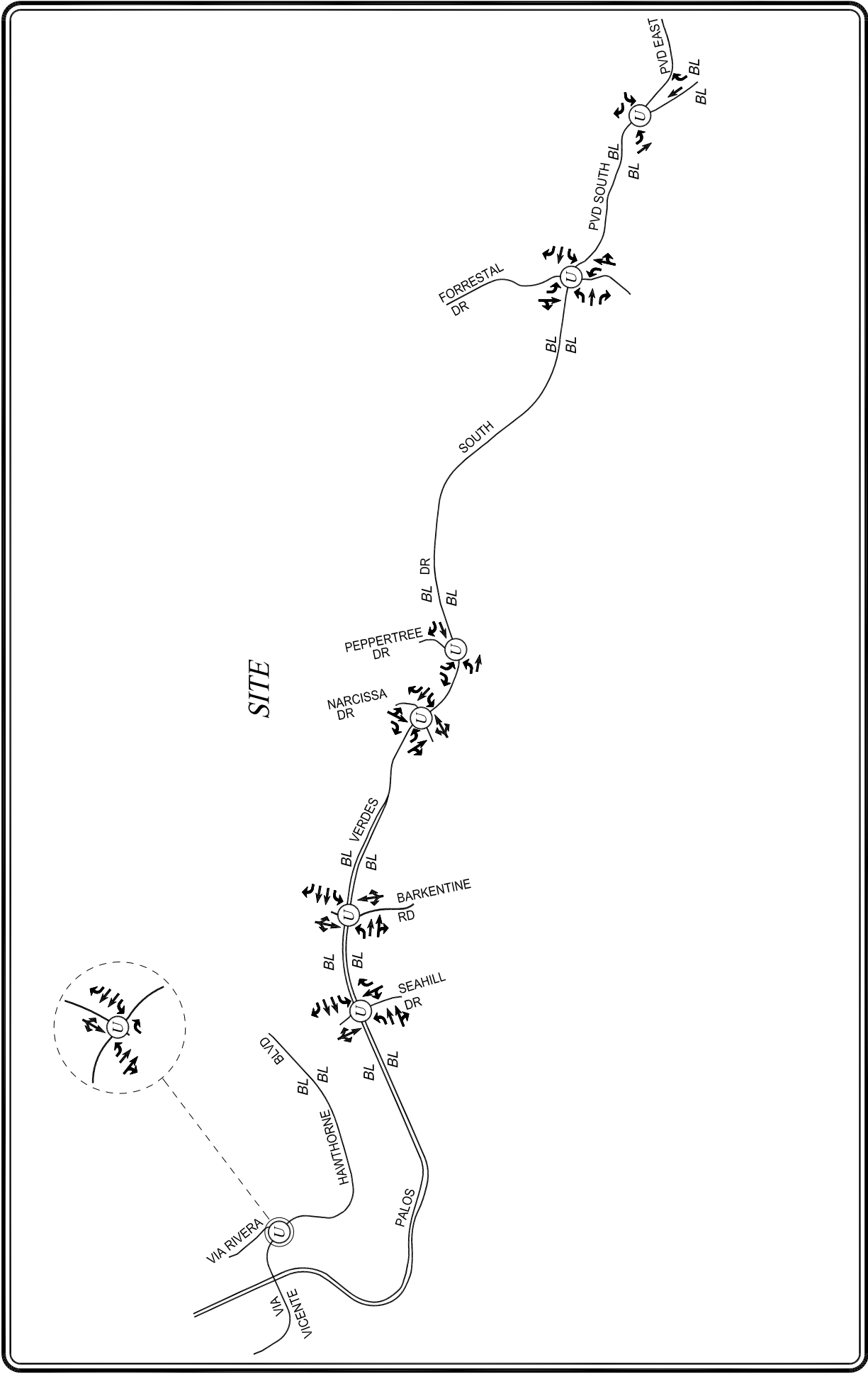


FIGURE 4-1
EXISTING ROADWAY CONFIGURATIONS AND
INTERSECTION CONTROLS
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

NOTES: (U) UNSIGNALIZED INTERSECTION

BL BIKE LANE



NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

4.1.2 Roadway Descriptions

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

4.1.3 Portuguese Bend Community Association

The Portuguese Bend Community Association (PBCA) is a private development. All roadways, including the two main access roadways of Peppertree Drive and Narcissa Drive, are private streets. The PBCA has the responsibility and authority to impose fees and assessments in order to maintain facilities, including the private roadway system. It is important to note that the roadway system was originally engineered for full development and buildout of the residential tract as originally reviewed and approved by the County of Los Angeles. As such, the City of Rancho Palos Verdes does not have the responsibility nor the authority to maintain the roadways.

4.2 Existing Public Bus Transit Service

Public bus transit service within the Zone 2 Landslide Moratorium - Portuguese Bend project study area is currently provided by the Los Angeles County Metropolitan Transportation Authority (Metro) and the Palos Verdes Peninsula Transit Authority (PVPTA). A summary of the existing transit service, including the transit route, destinations and peak hour headways is presented in **Table 4-2**. The existing public transit routes in the Zone 2 Landslide Moratorium - Portuguese Bend project site vicinity are illustrated in **Figure 4-2**.

4.3 Bicycle Facilities

Bicycle access to the project site is facilitated by the City's bicycle roadway network. Existing Class II bicycle facilities are provided along Palos Verdes Drive South in the immediate vicinity of the project. Visual observations were conducted at the project entrances on Palos Verdes Drive South and no conflicts between existing bicycle traffic and entering and/or existing residents at both gateways were noted.

4.4 Existing Traffic Volumes

Weekday AM and PM traffic count data for four of the seven study intersections were obtained from the City of Rancho Palos Verdes General Plan Update Traffic Impact Analysis². For those locations where no data were available, new manual counts of vehicular turning movements were conducted during the weekday AM, School PM and commuter PM periods to determine the peak hour traffic volumes. All of the manual counts were conducted by independent traffic count subconsultants from 7:00 to 9:00 AM to determine the AM peak commute hour, 2:00 to 4:00 PM to determine the School PM peak hour, and from 4:00 to 6:00 PM to determine the PM peak commute hour. Additionally,

² City of Rancho Palos Verdes General Plan Update Traffic Impact Analysis, August 15, 2017.

**Table 4-1
EXISTING ROADWAY DESCRIPTIONS**

Roadway	Classification [1]	Travel Lanes		Median Types [4]	Speed Limit
		Direction [2]	No. Lanes [3]		
Via Rivera	Local Street	NB-SB	2	N/A	25
Tramonto Drive	Local Street	NB-SB	2	RMI/N/A	25
Seahill Drive	Local Street	NB-SB	2	N/A	25
Barkentine Road	Local Street	NB-SB	2	N/A	25
Palos Verdes Drive South	Arterial	NB-SB	2 [5]	RMI/N/A	35
Pepper Tree Drive	Private Road	NB-SB	2	N/A	25
Forrestal Drive	Local Street	NB-SB	2	N/A	25
Trump National Drive	Local Street	NB-SB	2	N/A	25
Palos Verdes Drive East	Arterial	NB-SB	2	N/A	40
Hawthorne Boulevard	Arterial	EB-WB	4 [5]	RMI	45
Palos Verdes Drive South	Arterial	EB-WB	4 [5]	RMI	45
Narcissa Drive	Private Road	EB-WB	2	N/A	25

Notes:

- [1] Roadway classifications obtained from the *City of Rancho Palos Verdes (Circulation Element)*, adopted September 2018.
- [2] Direction of roadways in the project area: NB-SB = northbound and southbound; and EB-WB = eastbound and westbound.
- [3] Number of lanes in both directions on the roadway.
- [4] Median type of the road: RMI = Raised Median Island; 2WLT = 2-Way Left-Turn Lane; and N/A = Not Applicable.
- [5] Class II (Bike Lane)

Table 4-2
EXISTING TRANSIT ROUTES [1]

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES DURING PEAK HOUR		
			DIR	AM	PM
Metro 344	Ranchos Palos Verdes to Harbor Gateway via Torrance	Via Rivera, Tramonto Drive, Seahill Drive, Barkentine Road, Hawthorne Boulevard, Palos Verdes Drive South	NB SB	2 4	3 2
PVPTA 226	Palos Verdes Estates	Palos Verdes Drive West, Hawthorne Boulevard	NB SB	0 2	1 0
PVPTA Blue Line	Palos Verdes Estates to Rancho Palos Verdes (School Days)	Palos Verdes Drive West, Hawthorne Boulevard	Inbound Outbound	1 1	1 1
PVPTA Gold Line	Rancho Palos Verdes to Rolling Hills (School Days)	Tramonto Drive, Seahill Drive, Narcissa Drive Pepper Tree Drive, Trump National Drive, Palos Verdes Drive South	Inbound Outbound	1 1	1 1
PVPTA Orange Line	Palos Verdes Estates to Rolling Hills via Rancho Palos Verdes (School Days)	Tramonto Drive, Seahill Drive, Narcissa Drive Pepper Tree Drive, Trump National Drive, Palos Verdes Drive South	Inbound Outbound	0 1	1 0
			Total	13	11

[1] Sources: Los Angeles County Metropolitan Transportation Authority (Metro) and Palos Verdes Peninsula Transit Authority (PVPTA) websites, 2018.

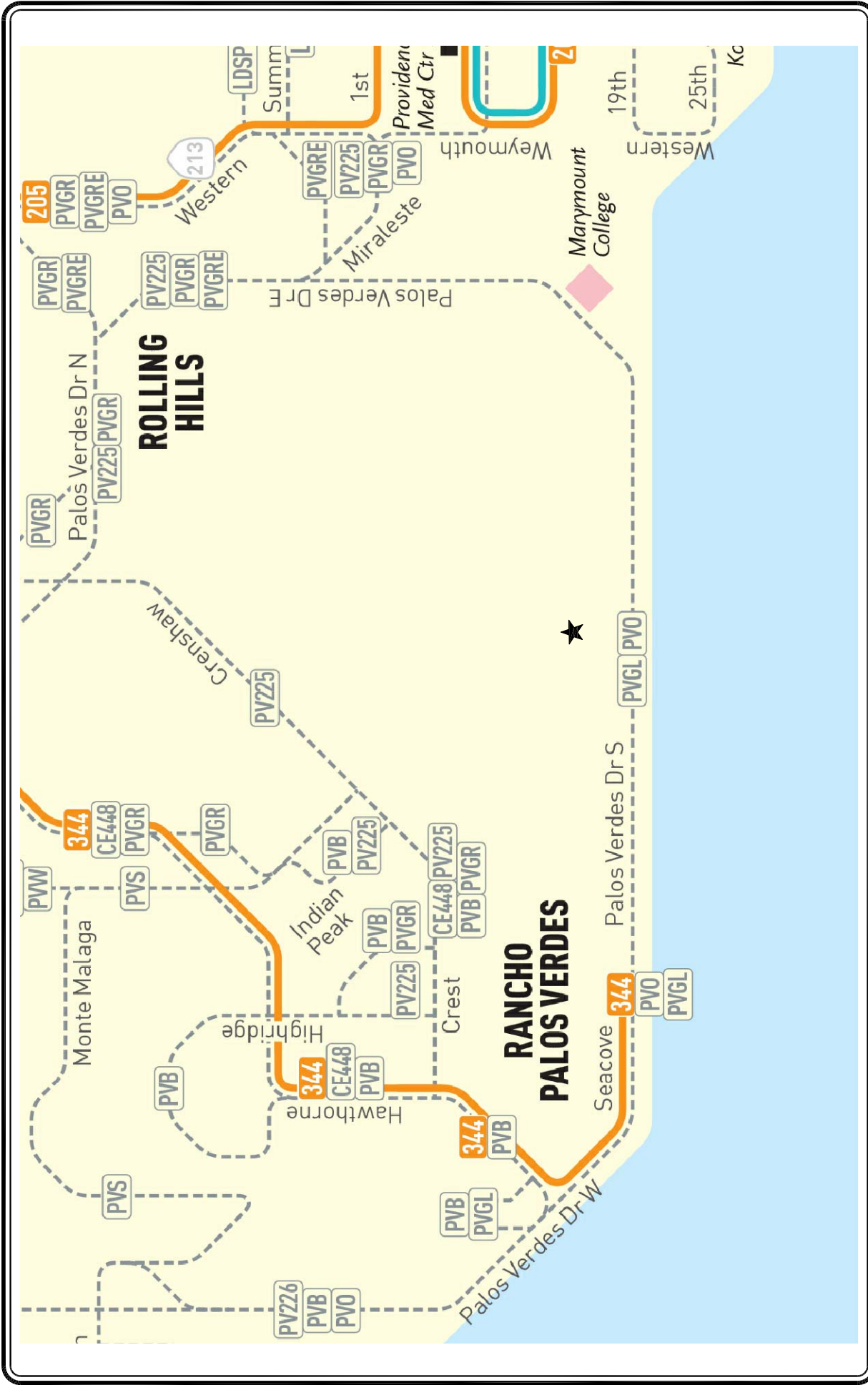


FIGURE 4-2
EXISTING PUBLIC TRANSIT ROUTES

ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

MAP SOURCE: METROPOLITAN TRANSPORTATION AUTHORITY (METRO) WEBSITE

PROJECT SITE

NOT TO SCALE

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the available manual traffic count data were adjusted by 0.6 percent (0.6%) per year to reflect existing conditions and, where necessary, manually adjusted to provide balance between study locations.

The existing weekday AM, School PM and PM peak hour manual counts of turning vehicles at the seven study intersections are summarized in **Table 4-3**. The existing traffic volumes at the study intersections during the weekday AM, School PM and PM peak hours are shown in **Figures 4-3, 4-4** and **4-5**, respectively. Summary data worksheets of the manual traffic counts of the study intersections are contained in **Appendix A**.

4.5 Existing Intersection Operating Conditions

Existing AM, School PM and PM peak hour operating conditions for the seven study intersections were evaluated using the methodology outlined in Chapter 20 of the *Highway Capacity Manual 6th Edition*³ (HCM) for unsignalized intersections.

4.5.1 Highway Capacity Manual Method of Analysis

The HCM method determines the average control delay experienced at the intersections. The TWSC methodology estimates the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns and determines the LOS for each constrained movement. Average control delay for any particular movement is a function of the capacity of the approach and the degree of saturation. The average control delay is measured in seconds per vehicle, and includes delay due to deceleration to a stop at the back of the queue from free-flow speed, move-up time within the queue, stopped delay at the front of the queue, and delay due to acceleration back to free-flow speed. The six qualitative categories of Level of Service have been defined along with the corresponding HCM control delay value range, as shown in **Table 4-4**.

TABLE 4-4
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS)	Highway Capacity Manual Delay Value (sec/veh)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

³ Source: *Highway Capacity Manual 6th Edition*, Transportation Research Board, 2016.

Table 4-3
EXISTING TRAFFIC VOLUMES [1]
WEEKDAY AM, PM AND SCHOOL PM PEAK HOURS

NO.	INTERSECTION	DATE	DIR	AM PEAK HOUR		PM PEAK HOUR		SCHOOL PM PK HR	
				BEGAN	VOLUME	BEGAN	VOLUME	BEGAN	VOLUME
1	Via Rivera/ Hawthorne Boulevard	11/29/2016 11/14/2018	NB	7:45	3	4:30	9	2:45	10
			SB		182		95		156
			EB		857		596		799
			WB		660		728		927
2	Tramonto Drive-Seahill Drive/ Palos Verdes Drive South	11/29/2016 11/14/2018	NB	7:15	124	5:00	68	3:00	76
			SB		0		10		6
			EB		422		726		991
			WB		999		547		547
3	Barkentine Road/ Palos Verdes Drive South	11/14/2018	NB	8:00	27	4:30	12	3:00	12
			SB		9		12		12
			EB		442		952		952
			WB		1,036		541		541
4	Narcissa Drive/ Palos Verdes Drive South	11/14/2018	NB	8:00	0	4:30	0	3:00	0
			SB		27		34		34
			EB		409		933		933
			WB		1,034		528		528
5	Peppertree Drive/ Palos Verdes Drive South	11/14/2018	NB	8:00	0	4:30	0	3:00	0
			SB		24		17		17
			EB		398		920		920
			WB		1,040		535		535
6	Forrestal Drive/ Palos Verdes Drive South	11/29/2016 11/14/2018	NB	7:30	20	4:30	50	3:00	49
			SB		71		72		64
			EB		461		823		942
			WB		1,011		521		607
7	Palos Verdes Drive East/ Palos Verdes Drive South	11/29/2016 11/14/2018	NB	7:30	0	4:30	0	3:00	0
			SB		184		111		164
			EB		519		865		959
			WB		939		506		535

[1] Counts conducted by NDS, City Traffic Counters and Counts Unlimited

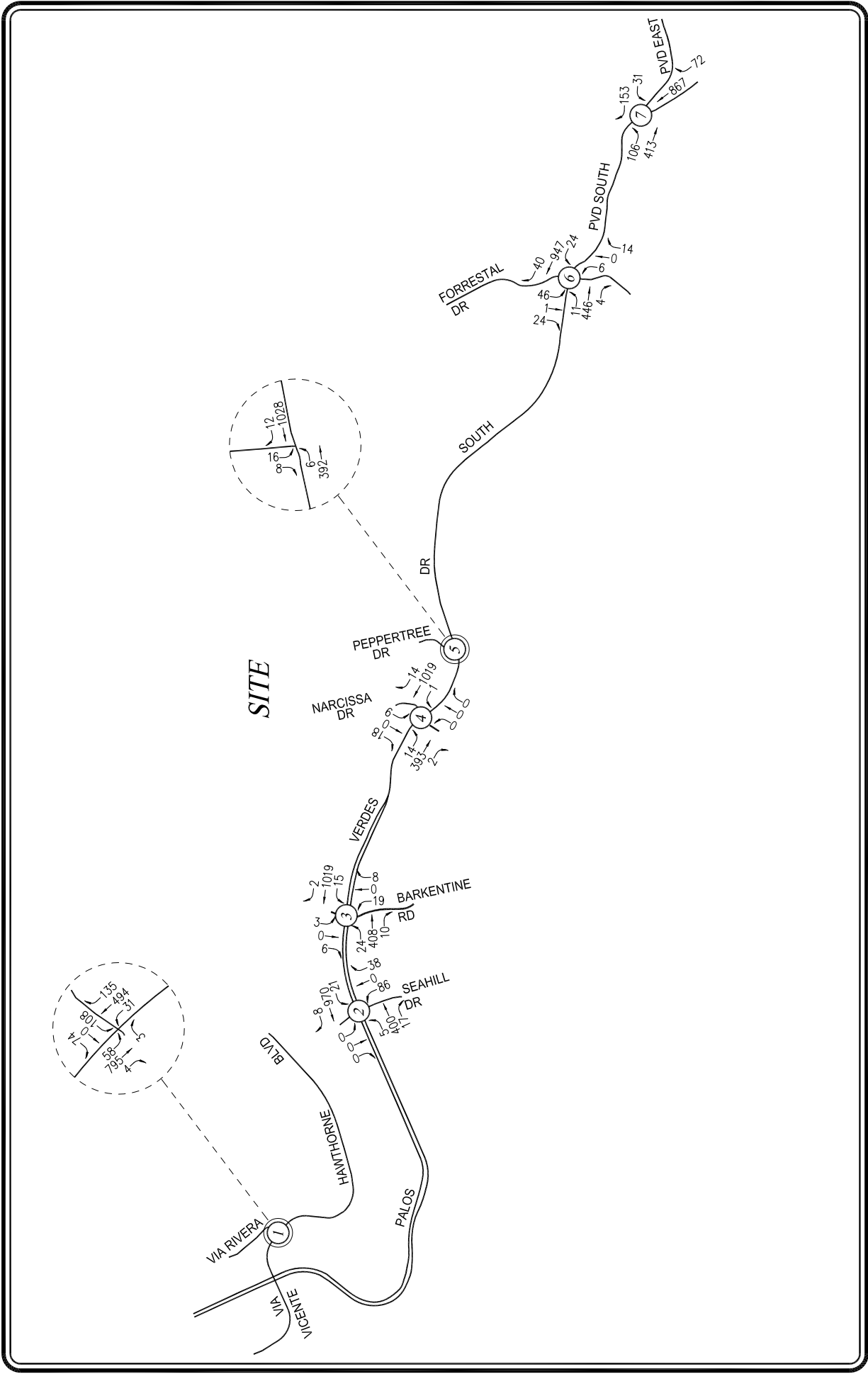


FIGURE 4-3
EXISTING TRAFFIC VOLUMES
 WEEKDAY AM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

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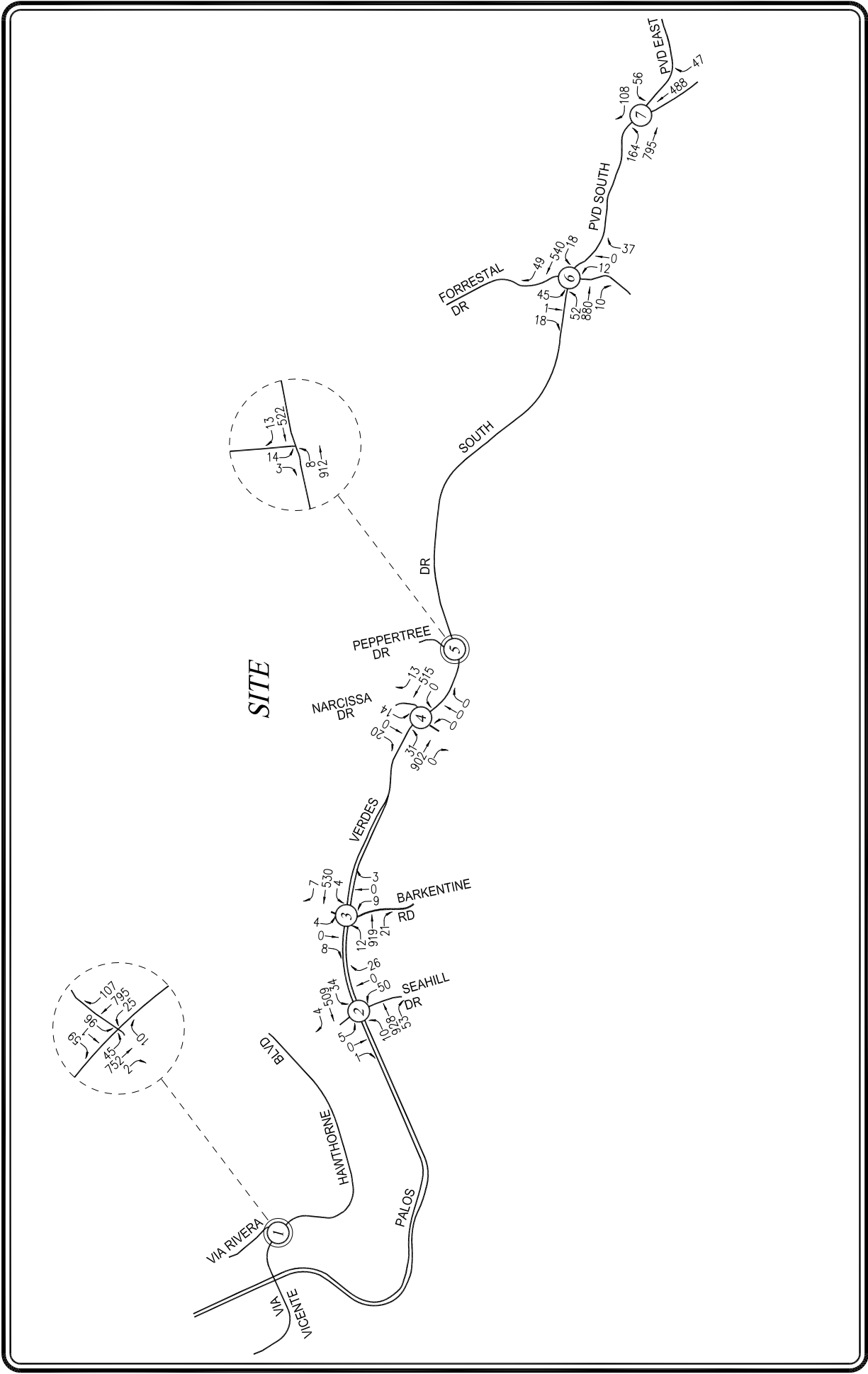


FIGURE 4-4
EXISTING TRAFFIC VOLUMES
 WEEKDAY SCHOOL PM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

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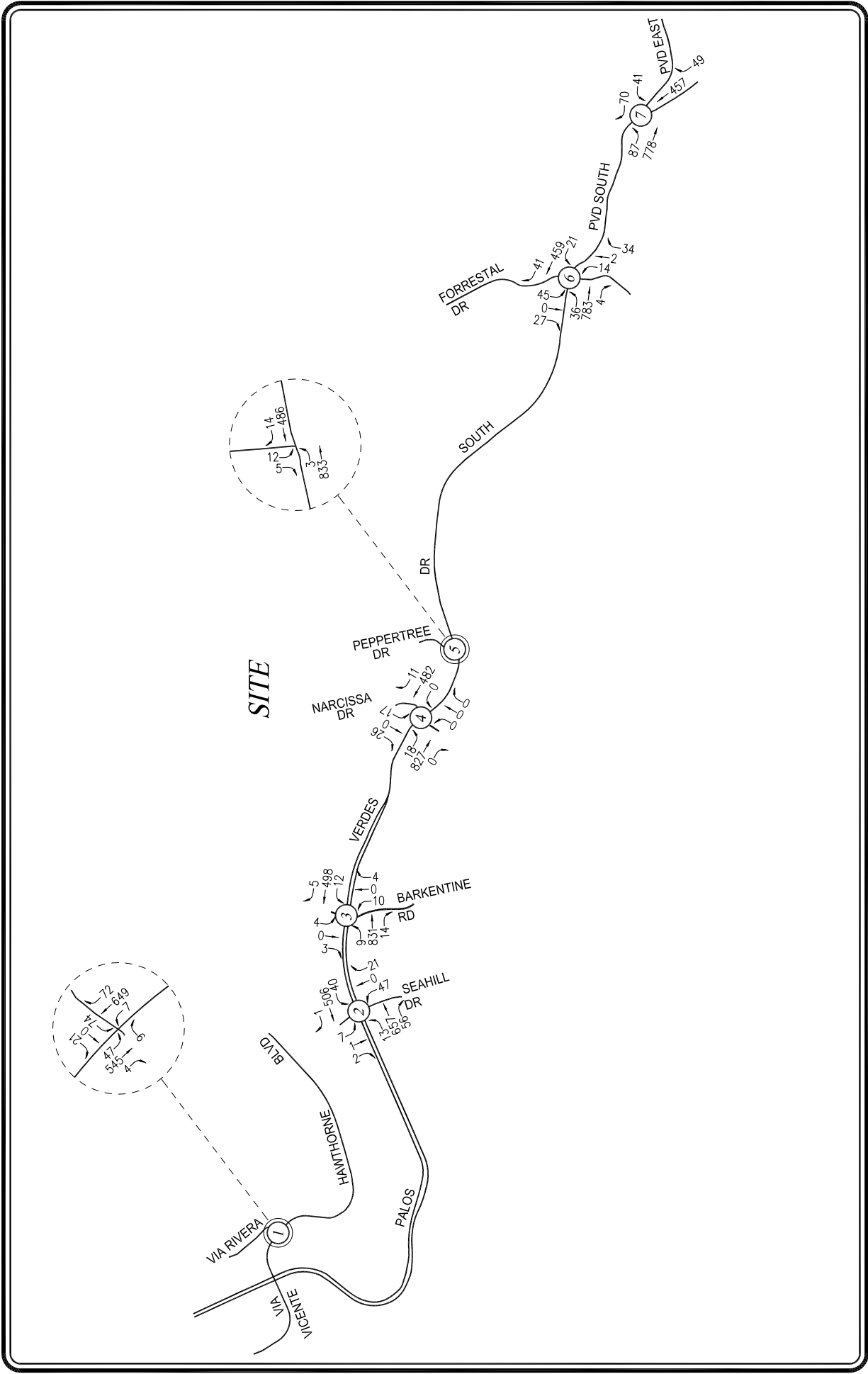


FIGURE 4-5
EXISTING TRAFFIC VOLUMES
 WEEKDAY PM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

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4.5.2 Existing Level of Service Results

The existing peak hour service level calculations for the seven study intersections based on existing traffic volumes and current street geometry is summarized in **Table 4-5**. Review of *Table 4-5* indicates that two of the seven study intersections are currently operating at acceptable Levels of Service (i.e., LOS D or better) during the weekday AM, School PM and PM peak hours. The HCM data worksheets for the analyzed intersections for the weekday AM and PM peak hours are contained in **Appendix B**.

Table 4-5
SUMMARY OF EXISTING INTERSECTION DELAYS AND LEVELS OF SERVICE
WEEKDAY AM, PM, AND SCHOOL PM PEAK HOURS

NO.	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	YEAR 2018 EXISTING CONDITIONS	
				DELAY [a]	LOS [b]
1	Via Rivera/ Hawthorne Boulevard	Two-Way Stop	AM School PM PM	77.5 189.0 40.7	F F E
2	Tramonto Drive-Seahill Drive/ Palos Verdes Drive South	Two-Way Stop	AM School PM PM	32.6 58.9 31.1	D F D
3	Barkentine Road/ Palos Verdes Drive South	Two-Way Stop	AM School PM PM	23.3 31.4 26.5	C D D
4	Narcissa Drive/ Palos Verdes Drive South	Two-Way Stop	AM School PM PM	46.6 52.1 42.4	E F E
5	Peppertree Drive/ Palos Verdes Drive South	Two-Way Stop	AM School PM PM	30.3 31.9 24.5	D D C
6	Forrestal Drive/ Palos Verdes Drive South	Two-Way Stop	AM School PM PM	62.3 107.7 52.5	F F F
7	Palos Verdes Drive East/ Palos Verdes Drive South	Two-Way Stop	AM School PM PM	30.3 47.0 25.0	D E C

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

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

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

5.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic impact characteristics of the Zone 2 Landslide Moratorium - Portuguese Bend project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic volumes on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the project development tabulation.

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

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

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

5.1 Project Traffic Generation Characteristics

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Traffic volumes to be generated by the proposed project were forecast for the weekday AM and PM peak hours, and over a 24-hour period. The resource typically used by traffic engineers (including the City of Rancho Palos Verdes) to forecast trip generation for development projects is the Institute of Transportation Engineers' (ITE) *Trip Generation* manual⁴. ITE Land Use Code 210 (Single-Family Detached Housing) trip generation average rates were used to forecast traffic volumes for the proposed project.

The trip generation rates and forecast of the vehicular trips anticipated to be generated by the proposed project are presented in **Table 5-1**. As summarized in *Table 5-1*, the proposed project is expected to generate 23 vehicle trips (6 inbound trips and 17 outbound trips) during the AM peak hour. During the PM peak hour, the proposed project is expected to generate 31 vehicle trips (20 inbound trips and 11 outbound trips). Over a 24-hour period, the proposed project is forecast to generate 293 daily trip ends during a typical weekday (approximately 147 inbound trips and 147 outbound trips). For purposes of this analysis, the weekday PM peak hour project traffic generation

⁴ Institute of Transportation Engineers *Trip Generation Manual*, 10th Edition, 2017.

Table 5-1
PROJECT TRIP GENERATION [1]

LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]			SCHOOL PM PEAK HOUR VOLUMES [2]			PM PEAK HOUR VOLUMES [2]		
			IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
Single Family Housing [3]	31 DU	293	6	17	23	20	11	31	20	11	31
TOTAL		293	6	17	23	20	11	31	20	11	31

[1] Source: ITE "Trip Generation Manual", 10th Edition, 2017.

[2] Trips are one-way traffic movements, entering or leaving.

[3] ITE Land Use Code 210 (Single-Family Detached Housing) trip generation average rates.

- Daily Trip Rate: 9.44 trips/dwelling unit; 50% inbound/50% outbound
- AM Peak Hour Trip Rate: 0.74 trips/dwelling units; 25% inbound/75% outbound
- PM Peak Hour Trip Rate: 0.99 trips/dwelling units; 63% inbound/37% outbound

was assumed to also comprise the School PM peak hour project traffic generation in order to provide a conservative forecast of potential traffic impacts.

5.2 Project Traffic Distribution and Assignment

The general, directional traffic distribution pattern for the proposed Zone 2 Landslide Moratorium - Portuguese Bend project is presented in **Figure 5-1**. Project traffic volumes both entering and exiting the site have been distributed and assigned to the adjacent street system based on the following considerations:

- The site's proximity to major traffic corridors (i.e., Palos Verdes Drive South),
- Expected localized traffic flow patterns based on adjacent roadway channelization and presence of traffic signals,
- Existing intersection traffic volumes,
- Ingress/egress availability at the project site, and
- Input from City staff.

The forecast weekday AM, School PM and PM peak hour project traffic volumes associated with the proposed project are presented in **Figures 5-2, 5-3** and **5-4**, respectively. The traffic volume assignments presented in **Figures 5-2, 5-3** and **5-4** reflect the traffic distribution characteristics shown in **Figure 5-1** and the project traffic generation forecasts presented in **Table 5-1**.

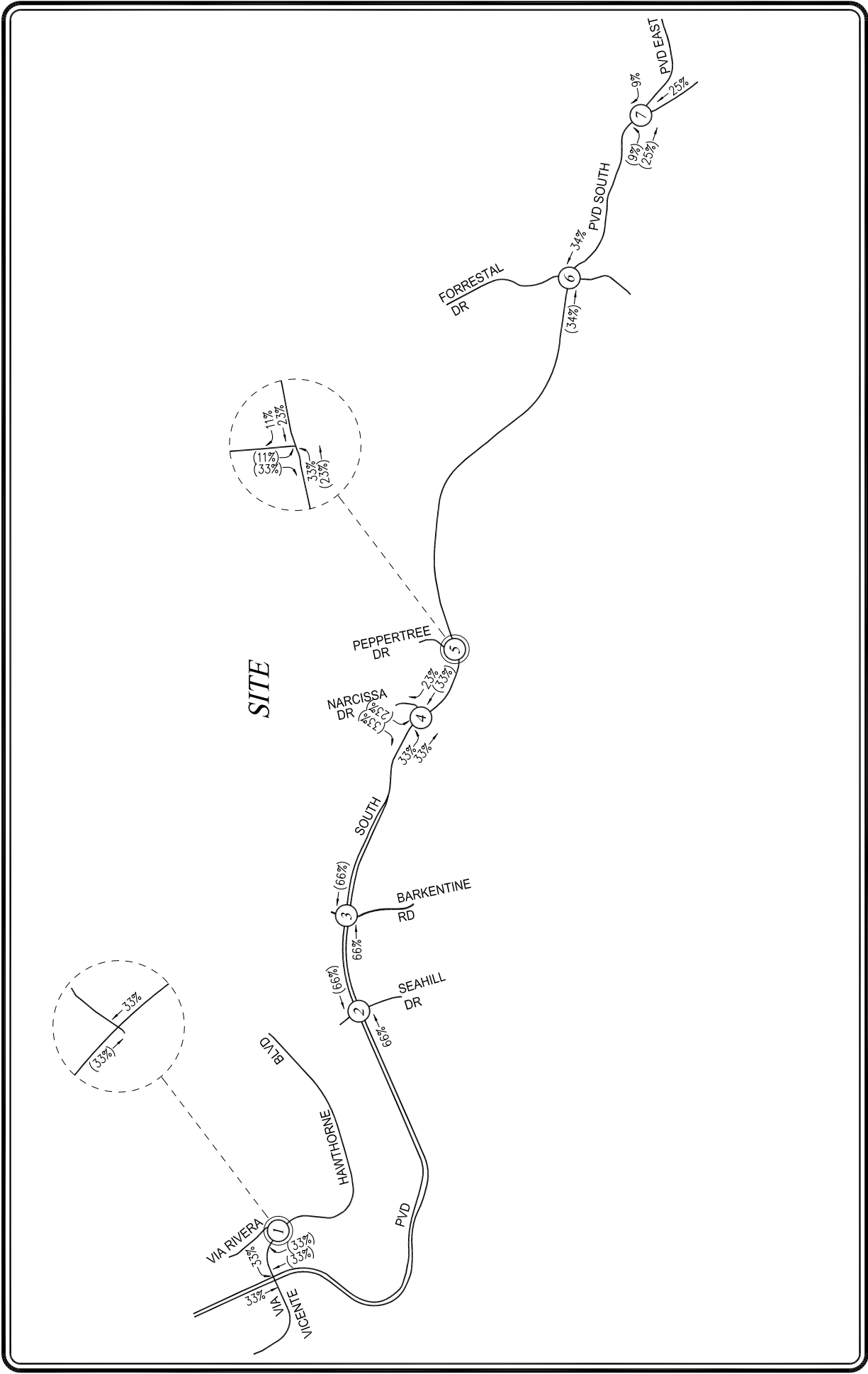


FIGURE 5-1
PROJECT TRAFFIC DISTRIBUTION PATTERN

(X) = INTERSECTION NUMBER
XX = INBOUND PERCENTAGES
(XX) = OUTBOUND PERCENTAGES

NOT TO SCALE

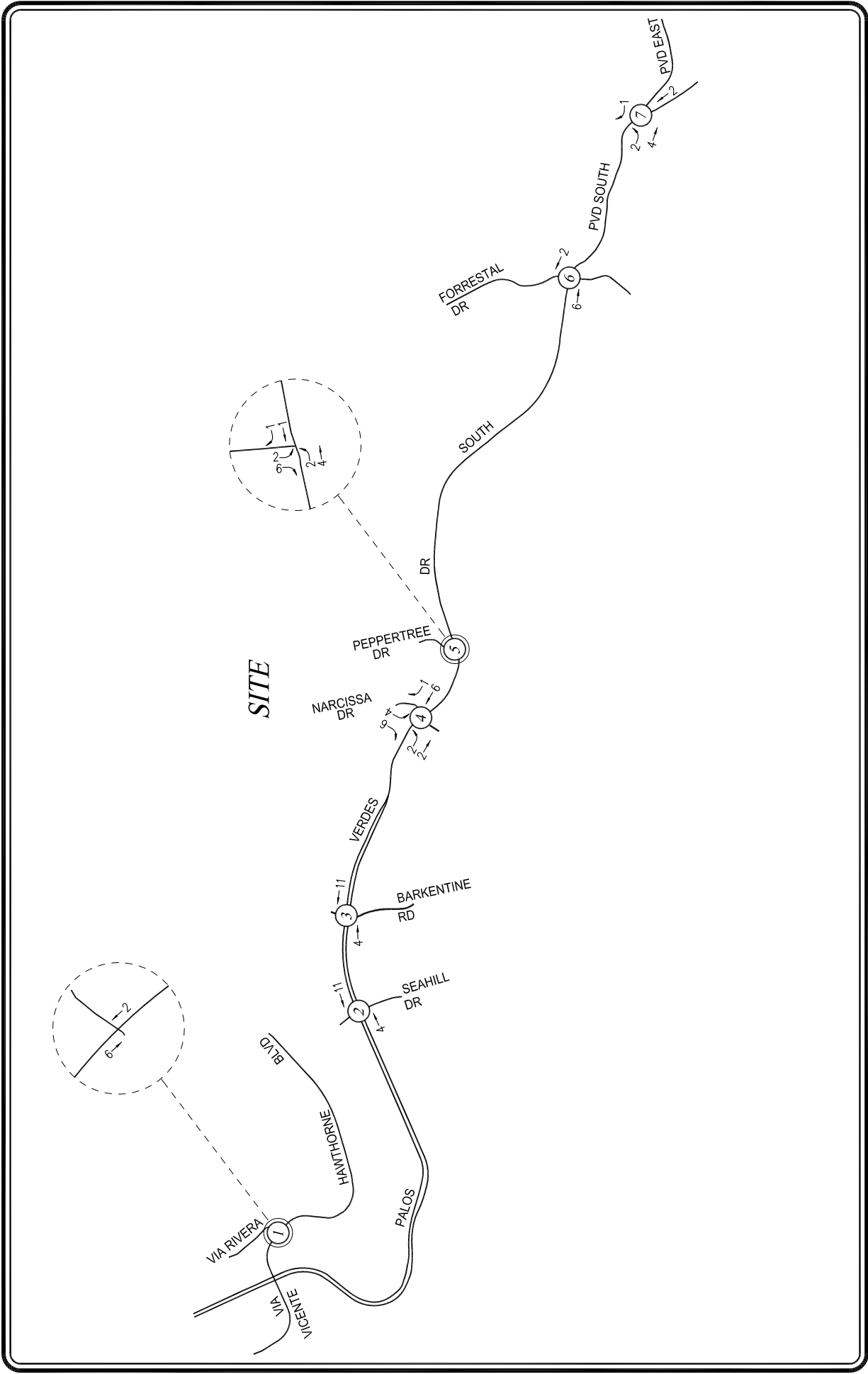


FIGURE 5-2
PROJECT TRAFFIC VOLUMES
 WEEKDAY AM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

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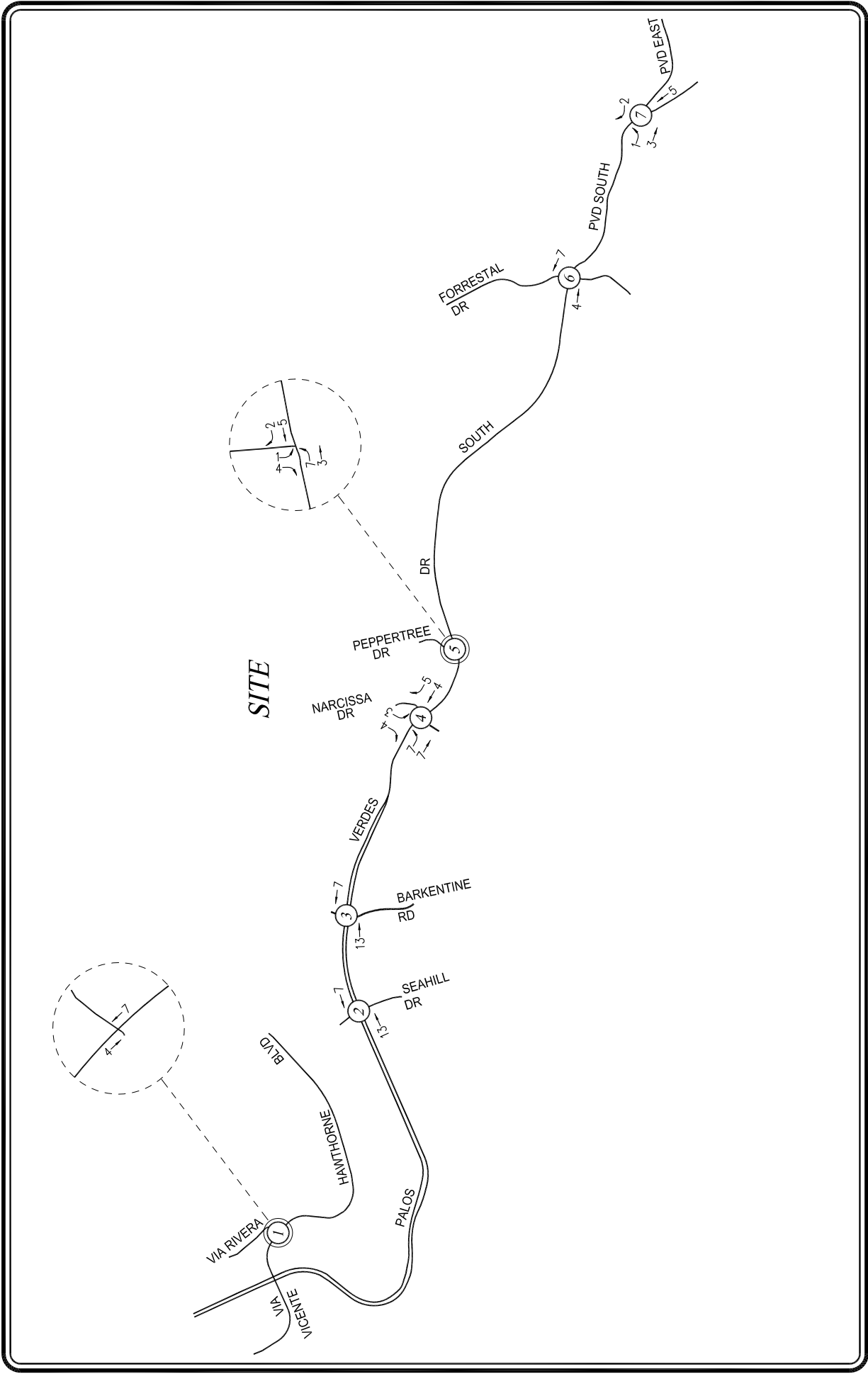


FIGURE 5-3
PROJECT TRAFFIC VOLUMES
 WEEKDAY SCHOOL PM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

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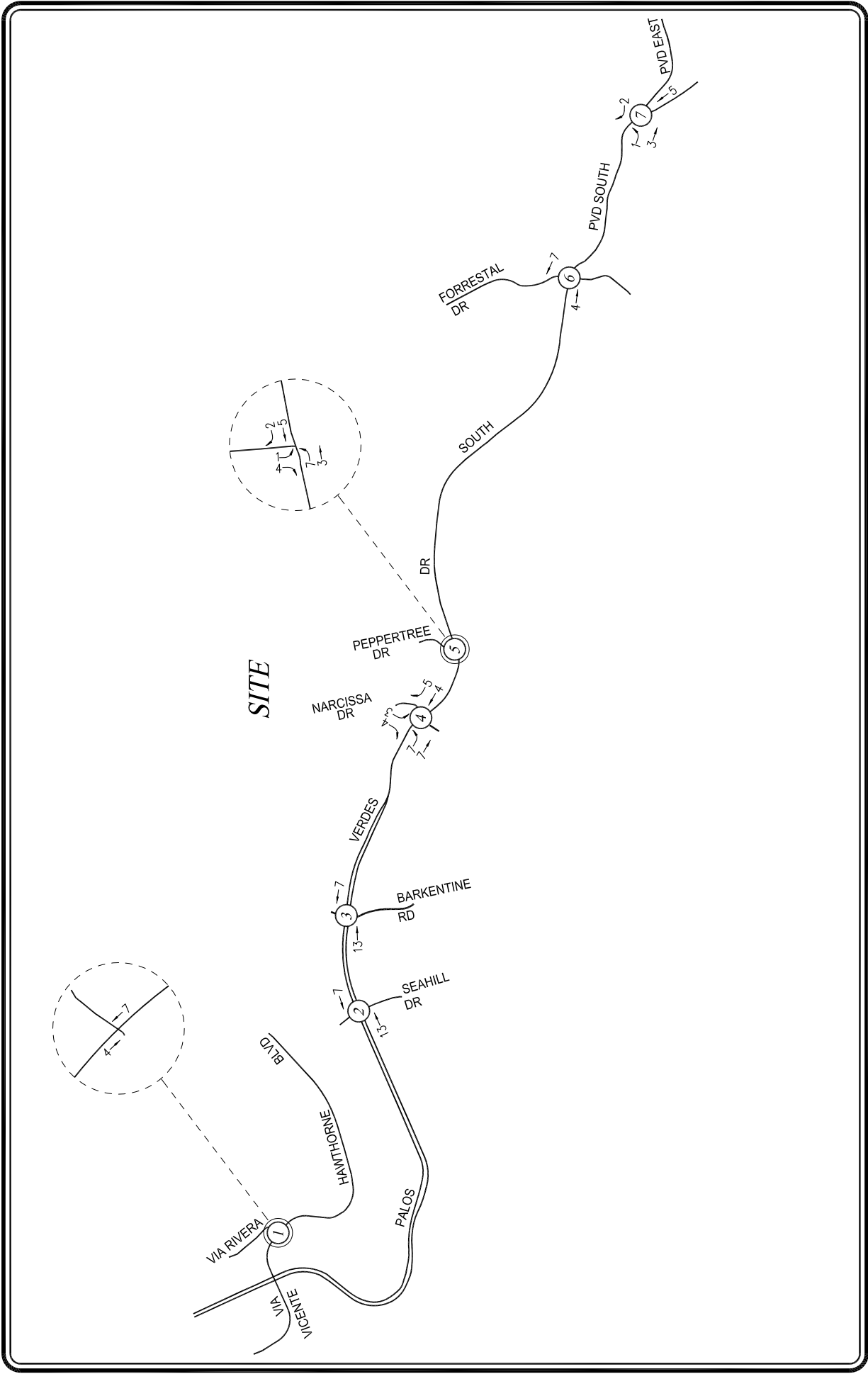


FIGURE 5-4
PROJECT TRAFFIC VOLUMES
 WEEKDAY PM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

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6.0 FUTURE TRAFFIC CONDITIONS

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

“(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the [lead] agency, or

(B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.”

The traffic analysis is conservative in that for the future year 2030 pre-project condition, both option “A” and “B” have been incorporated into the analysis as outlined the CEQA Guidelines for purposes of developing the future year 2030 forecasts.

6.1 Ambient Traffic Growth

Horizon year, background traffic growth estimates have been calculated by using an ambient traffic growth factor. The ambient traffic growth factor is intended to include unknown related projects in the study area, as well as account for typical growth in traffic volumes due to the development of projects outside the study area. The future growth in traffic volumes has been calculated at 0.6 percent (0.6%) per year. The ambient growth factor was based on review of the background traffic growth estimates for the Palos Verdes area published in the *2010 Congestion Management Program for Los Angeles County*, which indicate that existing traffic volumes would be expected to increase at an annual rate of approximately 0.51 percent (0.51% per year) between years 2010 and 2030. However, in order to provide a conservative analysis, the higher ambient growth factor of 0.60 percent (0.60% per year) contained in the *2004 Congestion Management Program for Los Angeles County* was utilized in this analysis. Application of the ambient traffic growth factor to existing traffic volumes results in a 6.0 percent (6.0%) increase in existing traffic volumes to horizon Year 2030.

6.2 Related Projects Traffic Characteristics

In order to make a realistic estimate of future on-street conditions prior to implementation of the Zone 2 Landslide Moratorium - Portuguese Bend project, the status of other known development projects (related projects) in the area has been researched at the City of Rancho Palos Verdes, City of Rolling Hills Estates, City of Torrance, and City of Los Angeles. With this information, the potential impact of the proposed project can be evaluated within the context of the cumulative impact of all ongoing development. Based on current research, 22 related projects are located in the project vicinity that have either been built, but not yet fully occupied, or are being processed for approval. These 22 related projects have been included as part of the cumulative background setting in Year 2030.

The location of the related projects and a brief description for each of the 22 related projects are described in **Table 6-1**. The location of the related projects is graphically illustrated in **Figure 6-1**. These related projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

Traffic volumes expected to be generated by the related projects were calculated using rates provided in the *ITE Trip Generation Manual*. The related projects respective traffic generation for the weekday AM and PM peak hours, as well as on a daily basis for a typical weekday, is summarized in **Table 6-1**. The assignment of the related projects traffic volumes to the study intersections during the weekday AM and PM peak hours are displayed in **Figures 6-2** and **6-3**, respectively. It should be noted that the weekday PM peak hour trip generation for related projects were utilized for the School PM peak hour period.

6.3 Existing With Project Traffic Volumes

The forecast weekday AM, School PM and PM peak hour with project traffic volumes (i.e., existing traffic volumes and proposed project traffic volumes) at the seven study intersections are illustrated in **Figures 6-4, 6-5** and **6-6**, respectively.

6.4 Year 2030 Traffic Volumes

6.4.1 Year 2030 Future Pre-Project Traffic Volumes

The Year 2030 future forecast weekday AM, School PM and PM peak hour pre-project traffic volumes (i.e., existing traffic volumes, ambient traffic growth to Year 2030 and related projects traffic volumes) at the seven study intersections are presented in **Figures 6-7, 6-8** and **6-9**, respectively.

6.4.2 Year 2030 Future With Project Traffic Volumes

The Year 2030 future forecast weekday AM, School PM and PM peak hour with project traffic volumes (i.e., existing traffic volumes, ambient traffic growth to Year 2030, related projects and proposed project traffic volumes) at the seven study intersections are illustrated in **Figures 6-10, 6-11** and **6-12**, respectively.

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

MAP NO.	PROJECT STATUS	PROJECT NAME/NUMBER ADDRESS/LOCATION	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2]	AM PEAK HOUR VOLUMES [2]		PM PEAK HOUR VOLUMES [2]			
			LAND-USE	SIZE			IN	OUT	IN	OUT	TOTAL	TOTAL
City of Rancho Palos Verdes												
R1	Under Construction	Monks Plaintiffs' Lots Zone 2 of the Landslide Moratorium Area	Single Family Residential	16 DU	[3]	151	3	9	12	10	6	16
R2	Proposed	Patel Subdivision 27581 Palos Verdes Drive East	Single Family Residential	2 DU	[3]	19	0	1	1	1	1	2
R3	Proposed	Maupin Subdivision 30389 & 30399 Palos Verdes Drive East	Single Family Residential	2 DU	[3]	19	0	1	1	1	1	2
R4	Proposed	Nantasket Subdivision 11-41 Nantasket Drive	Single Family Residential	4 DU	[3]	38	1	2	3	3	1	4
R5	Proposed	Chase Bank 28300 S. Western Avenue	Bank	4,131 GSF	[4]	413	23	16	39	42	42	84
R6	Proposed	Point View 6001 Palos Verdes Drive South	Single Family Residential	38 DU	[3]	359	7	21	28	24	14	38
City of Rolling Hills Estates												
RH1	Under Construction	601-627 Silver Spur Road 600 Deep Valley Drive	Residential Care Facility	114 DU	[5]	230	5	3	8	11	10	21
RH2	Approved	27520 Hawthorne Boulevard	Residential Care Facility	91 DU	[5]	184	4	2	6	8	8	16
RH3	Approved	927 Deep Valley Drive	Condominium Commercial	75 DU 2,000 GLSF	[6] [7]	549 76	8 1	27 1	35 2	26 4	16 4	42 8
RH4	Under Construction	Peninsula Center Southwest corner of Hawthorne Blvd and Silver Spur Road	Commercial	16,000 GLSF	[7]	604	9	6	15	29	32	61
RH5	Under Construction	627 Deep Valley Drive	Condominium Commercial	58 DU 5,810 GLSF	[6] [7]	425 219	6 3	21 2	27 5	20 11	12 11	32 22
RH6	Approved	26311-27000 Palos Verdes Drive East	Single Family Residential Country Club	114 DU 61,411 GSF	[3] [8]	1,076 1,770	21 71	63 37	84 108	71 67	42 75	113 142
City of Los Angeles												
L1	Proposed	319 N. Harbor Boulevard	Condominiums	94 DU	[9]	551	7	34	41	33	16	49
L2	Proposed	1046 S. Seaside Avenue	Dry Dock Facility	7 Acres	[9]	362	30	0	30	0	30	30

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

MAP NO.	PROJECT STATUS	PROJECT NAME/NUMBER ADDRESS/LOCATION	LAND USE DATA		PROJECT DATA SOURCE	DAILY TRIP ENDS [2]	AM PEAK HOUR VOLUMES [2]		PM PEAK HOUR VOLUMES [2]	
			LAND-USE	SIZE			IN	OUT	IN	OUT
L3	Under Construction	550 S. Palos Verdes Street	Apartment Retail Office	412 DU 3,800 GLSF 14,875 GSF	[9]	5,478	66	335	331	163
L4	Under Construction	Del Taco 670 W. 4th Street	High-Turnover Restaurant	2,619 GSF	[10]	630	29	28	21	20
L5	Proposed	Harbor View Mixed-Use 921 S. Beacon Street	Mixed-Use	107,000 GSF	[9]	1,114	43	55	64	32
L6	Proposed	2175 W. John S Gibson Boulevard	Affordable Housing	165 DU	[9]	30	2	2	2	2
L7	Under Construction	Ponte Vista at San Pedro 26900 S. Western Avenue	Single-Family Residential Condominiums	208 DU 492 DU	[11]	4,850	76	296	304	162
L8	Proposed	437-439 West 4th Street	Apartment Affordable Housing Retail	91 DU 8 DU 2,000 GLSF	[12]	566	11	27	28	19
L9	Proposed	515 N. Beacon Street	Temporary Shelters	102 Beds	[9]	130	6	8	8	6
City of Torrance										
T1	Proposed	Southwest corner of Hawthorne Boulevard and Via Valmonte	Apartment	248 DU	[13]	1,650	23	51	56	41
TOTAL						21,493	455	1,048	1,503	766
									1,175	1,941

[1] Sources: City of Rancho Palos Verdes Planning Department, City of Rolling Hills Estates Planning Department and the City of Los Angeles Department of Transportation (LADOT) and Planning. Trip generation for the related projects are based on ITE "Trip Generation Manual", 10th Edition, 2017 (as referenced in the Project Data Source column) unless otherwise noted.

[2] Trips are one-way traffic movements, entering or leaving.

[3] ITE Land Use Code 210 (Single Family Detached Housing) trip generation average rates.

[4] ITE Land Use Code 912 (Drive-In Bank) trip generation average rates.

[5] ITE Land Use Code 253 (Congregate Care Facility) trip generation average rates.

[6] ITE Land Use Code 220 (Multifamily Housing (Low-Rise)) trip generation average rates.

[7] ITE Land Use Code 820 (Shopping Center) trip generation average rates.

[8] ITE Land Use Code 495 (Recreational Community Center) trip generation average rates.

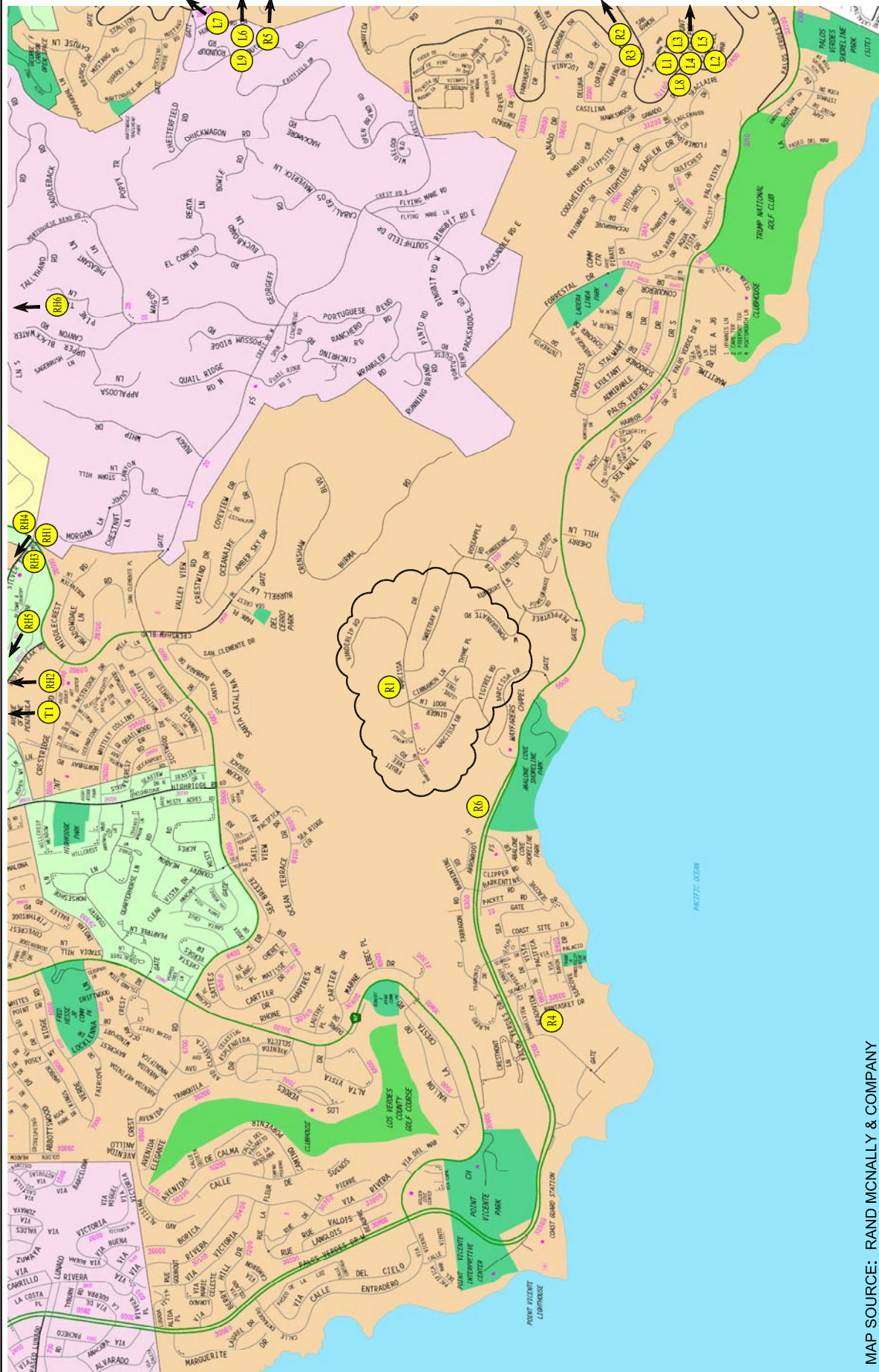
[9] City of Los Angeles Departments of Transportation (LADOT) and Planning, except as noted below. The peak hour traffic volumes were forecast based on trip data provided by LADOT and by applying trip rates as provided in the ITE "Trip Generation Manual", 9th Edition, 2012. For those related projects that LADOT provided trip data, the peak hour directional distribution data provided in the ITE "Trip Generation Manual" were utilized.

[10] Source: "Del Taco Restaurant Project Traffic Impact Study," prepared by LLG Engineers, dated February 28, 2017.

[11] Source: "Ponte Vista at San Pedro Traffic Assessment" prepared by LLG Engineers, dated September 13, 2013.

[12] Source: "Ponte Vista Mixed-Use Transportation Impact Study" prepared by LLG Engineers, dated November 19, 2018.

[13] Source: "Solana Torrance Traffic Impact Study" prepared by KHR Associates, dated April 20, 2017.



MAP SOURCE: RAND MCNALLY & COMPANY



NOT TO SCALE



PROJECT AREA

-  CITY OF RANCHO PALOS VERDES RELATED PROJECT
-  CITY OF ROLLING HILLS ESTATES RELATED PROJECT
-  CITY OF LOS ANGELES RELATED PROJECT
-  CITY OF TORRANCE RELATED PROJECT

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FIGURE 6-1

LOCATION OF RELATED PROJECTS

ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

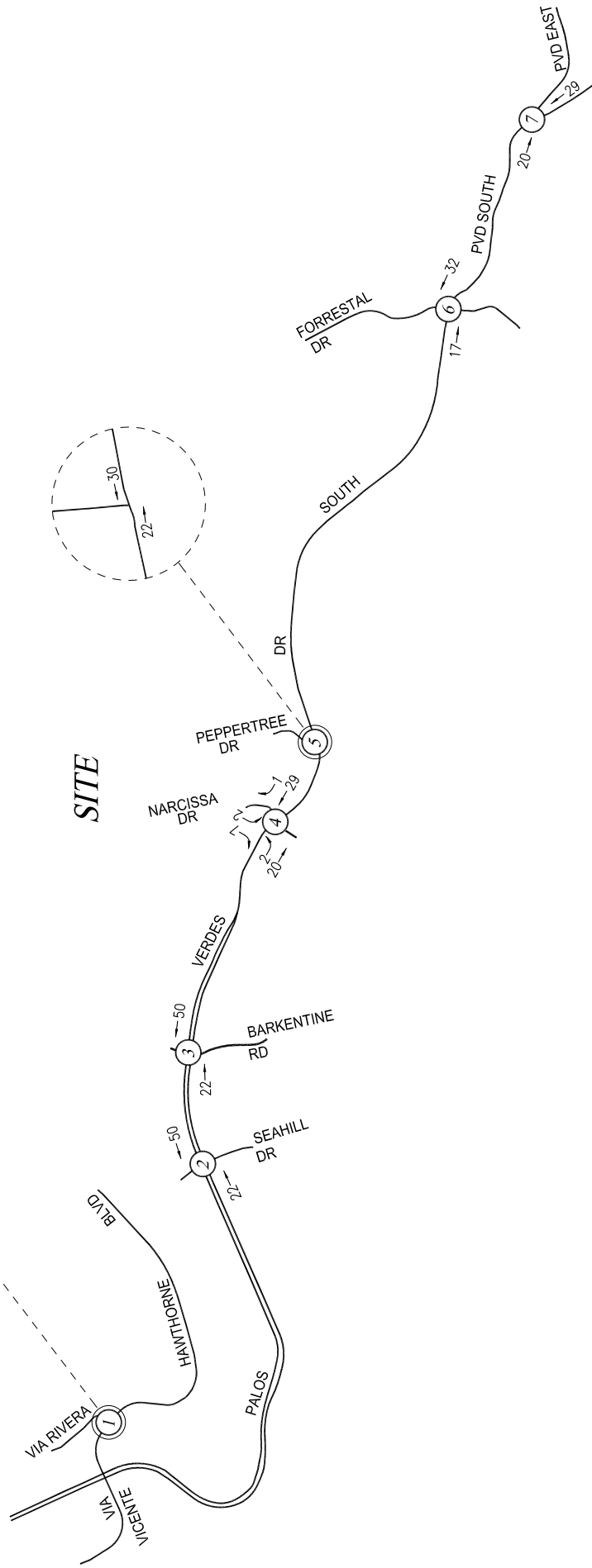


FIGURE 6-2
RELATED PROJECTS TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR
ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

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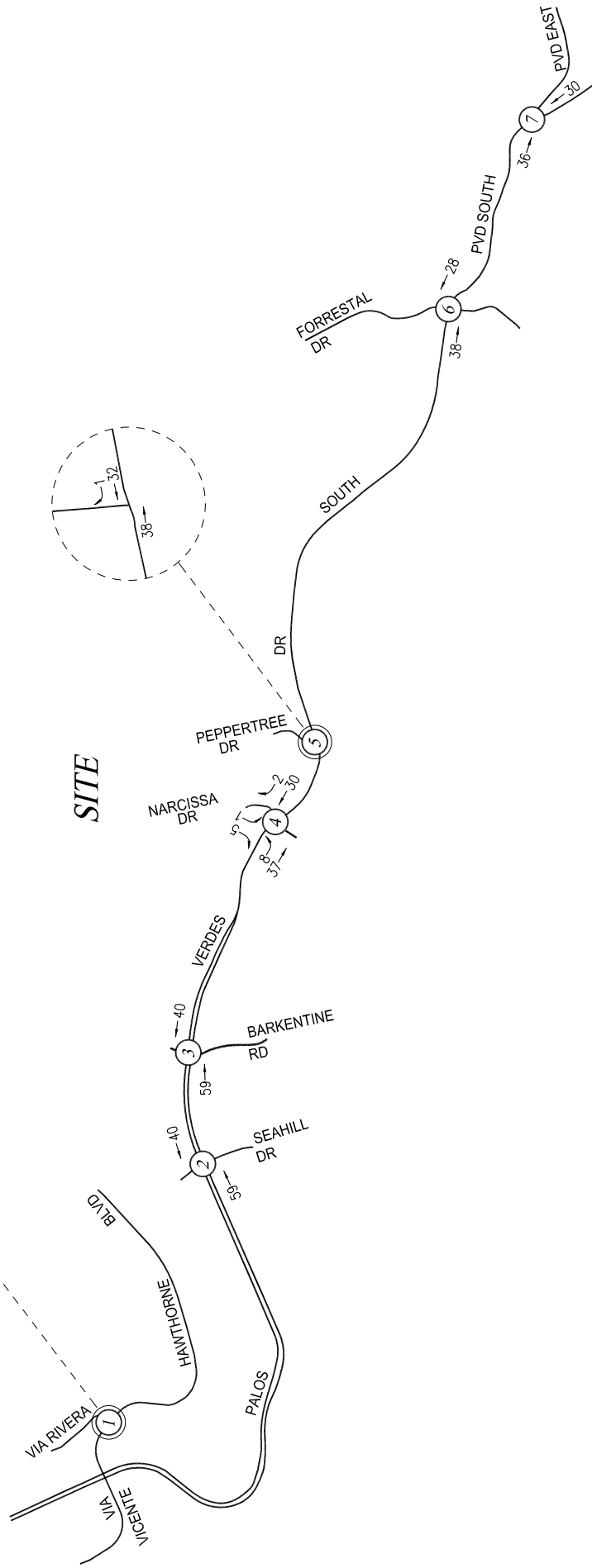


FIGURE 6-3
RELATED PROJECTS TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

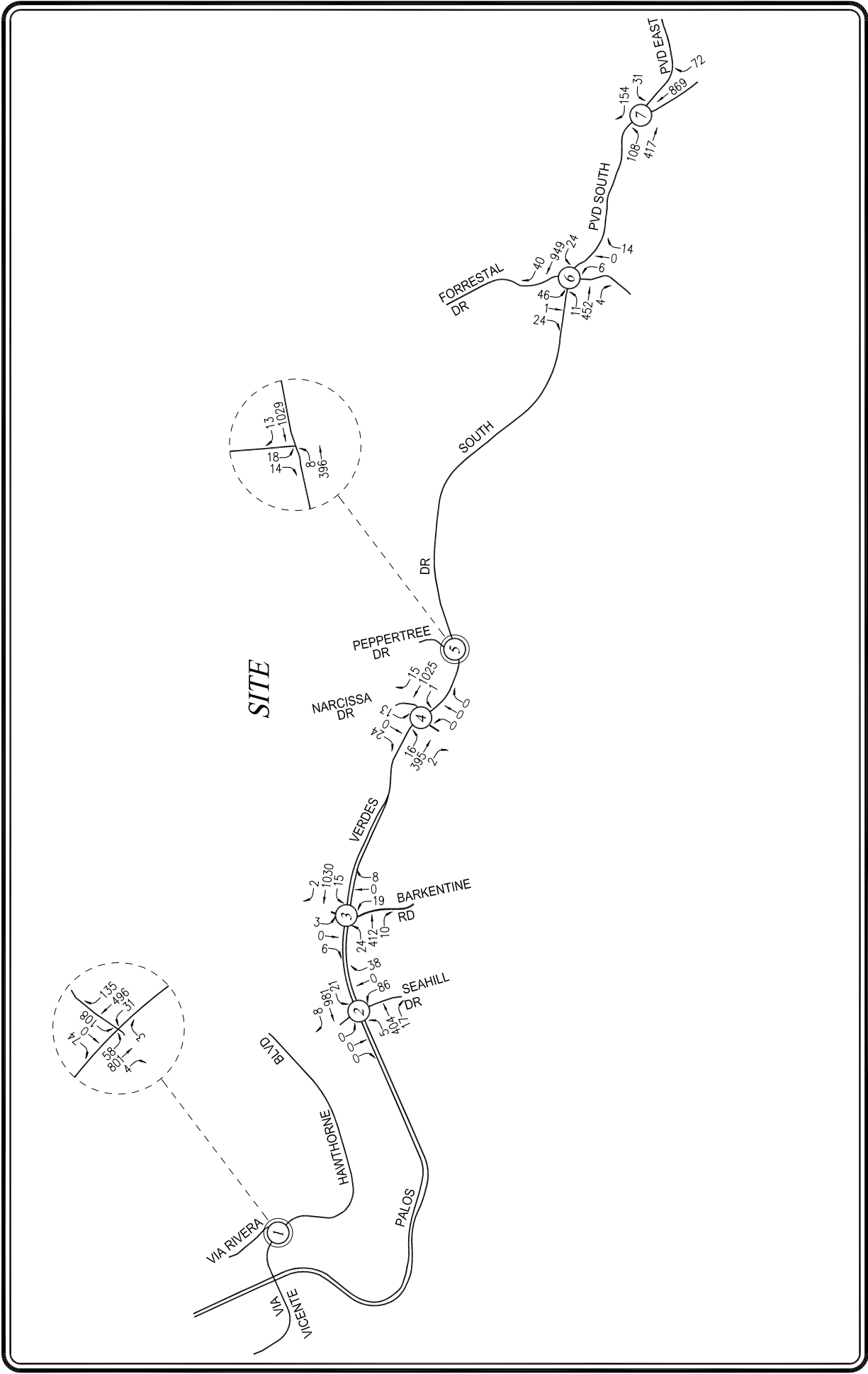


FIGURE 6-4
EXISTING WITH PROJECT TRAFFIC VOLUMES
 WEEKDAY AM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

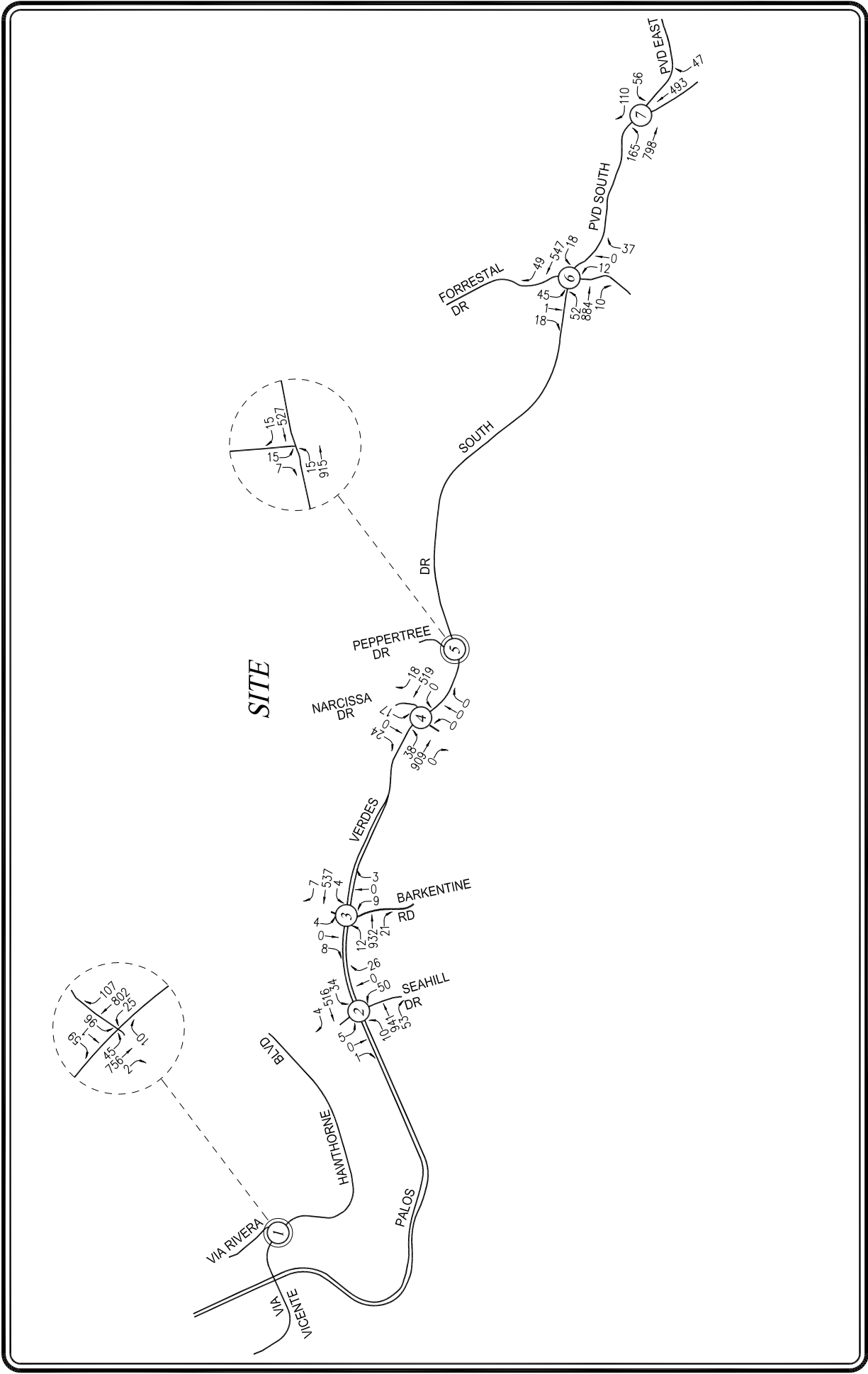


FIGURE 6-5
EXISTING WITH PROJECT TRAFFIC VOLUMES
 WEEKDAY SCHOOL PM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

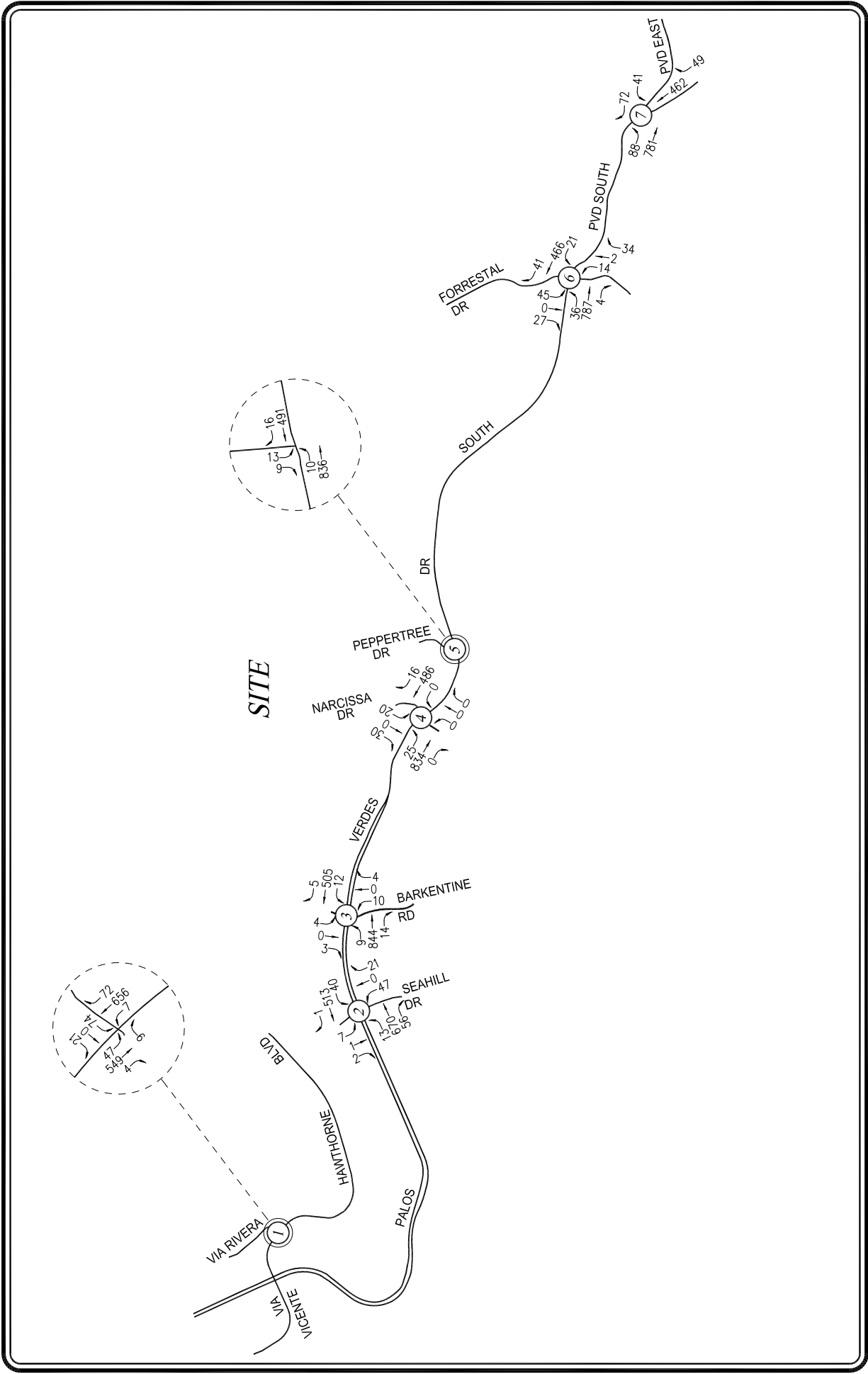


FIGURE 6-6
EXISTING WITH PROJECT TRAFFIC VOLUMES
 WEEKDAY PM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

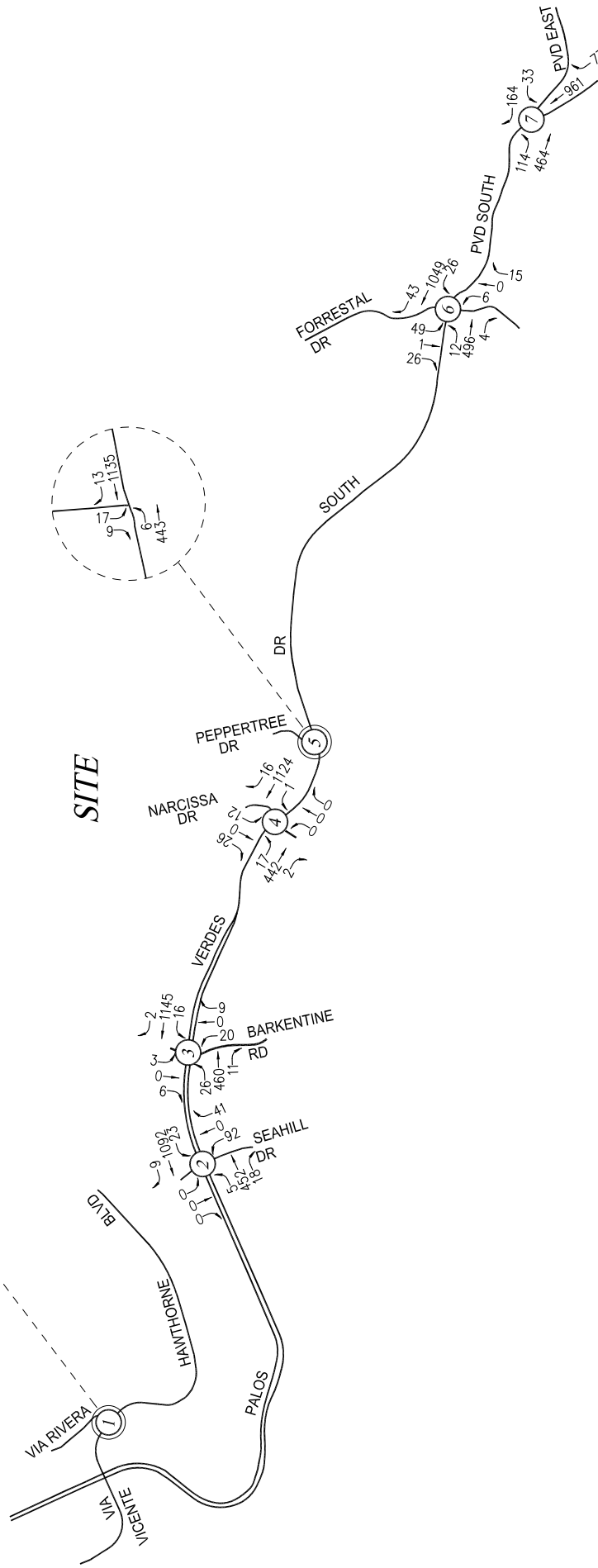


FIGURE 6-7
YEAR 2030 FUTURE PRE-PROJECT TRAFFIC VOLUMES
WEEKDAY AM PEAK HOUR
ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE



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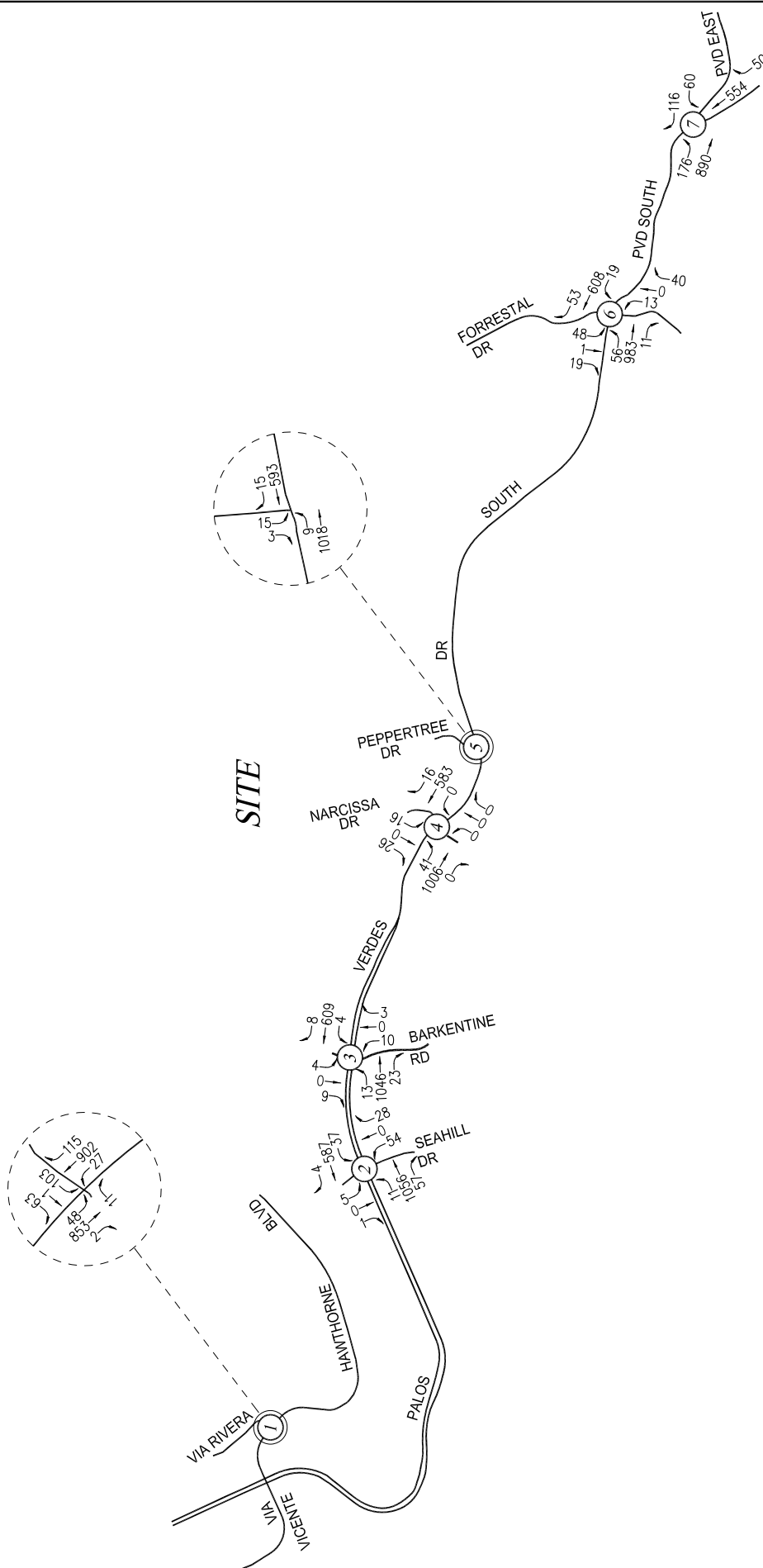


FIGURE 6-8
YEAR 2030 FUTURE PRE-PROJECT TRAFFIC VOLUMES
WEEKDAY SCHOOL PM PEAK HOUR
ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

$\odot X$ = INTERSECTION NUMBER

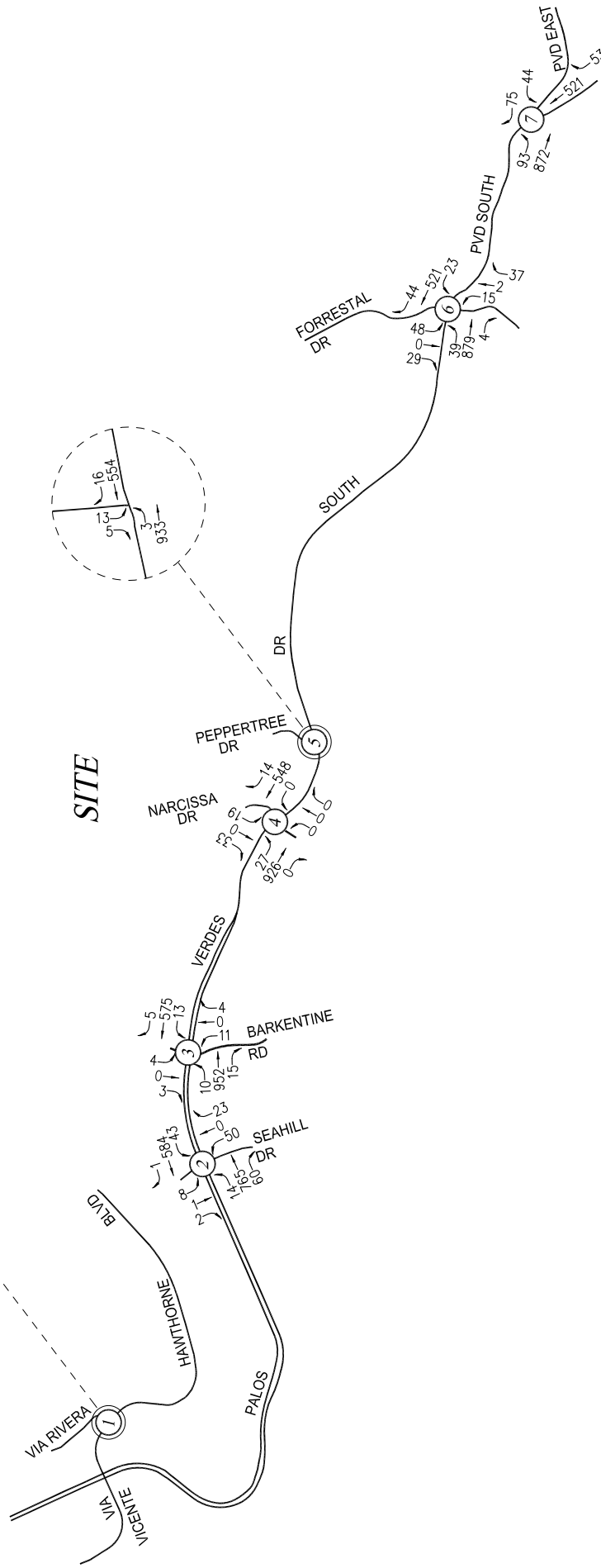


FIGURE 6-9
YEAR 2030 FUTURE PRE-PROJECT TRAFFIC VOLUMES
WEEKDAY PM PEAK HOUR
ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE



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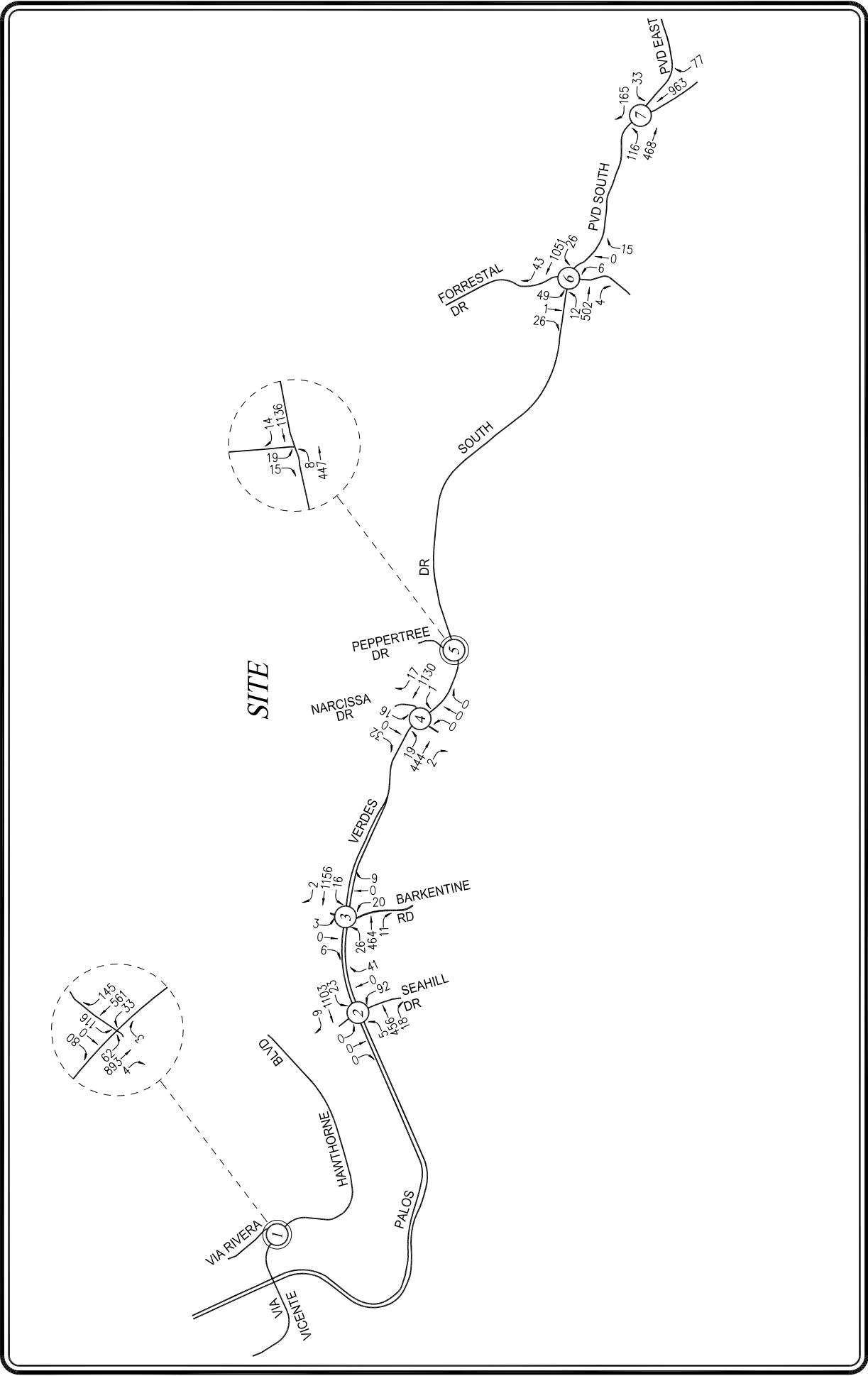


FIGURE 6-10
YEAR 2030 FUTURE WITH PROJECT TRAFFIC VOLUMES
 WEEKDAY AM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

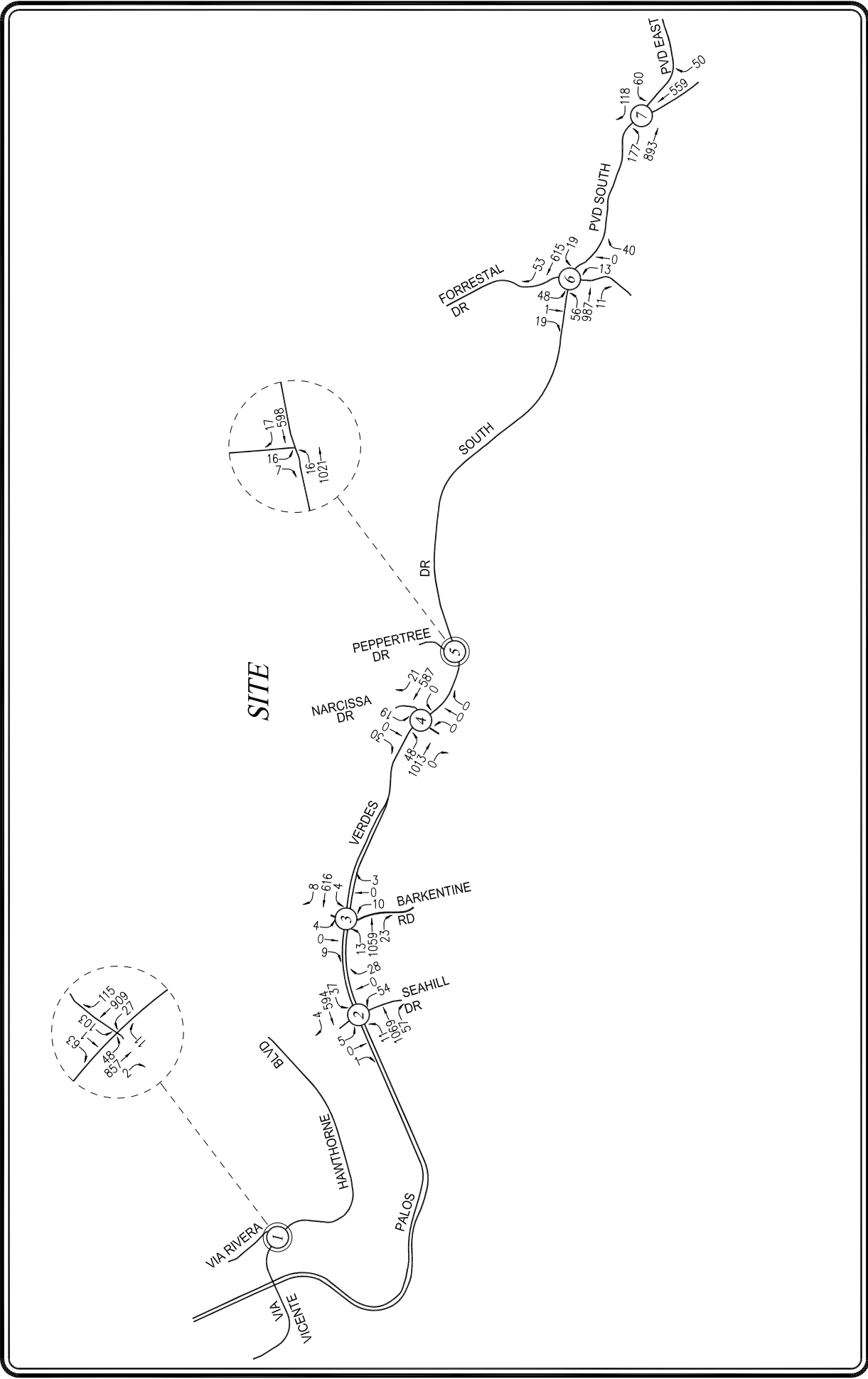


FIGURE 6-11
YEAR 2030 FUTURE WITH PROJECT TRAFFIC VOLUMES
 WEEKDAY SCHOOL PM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

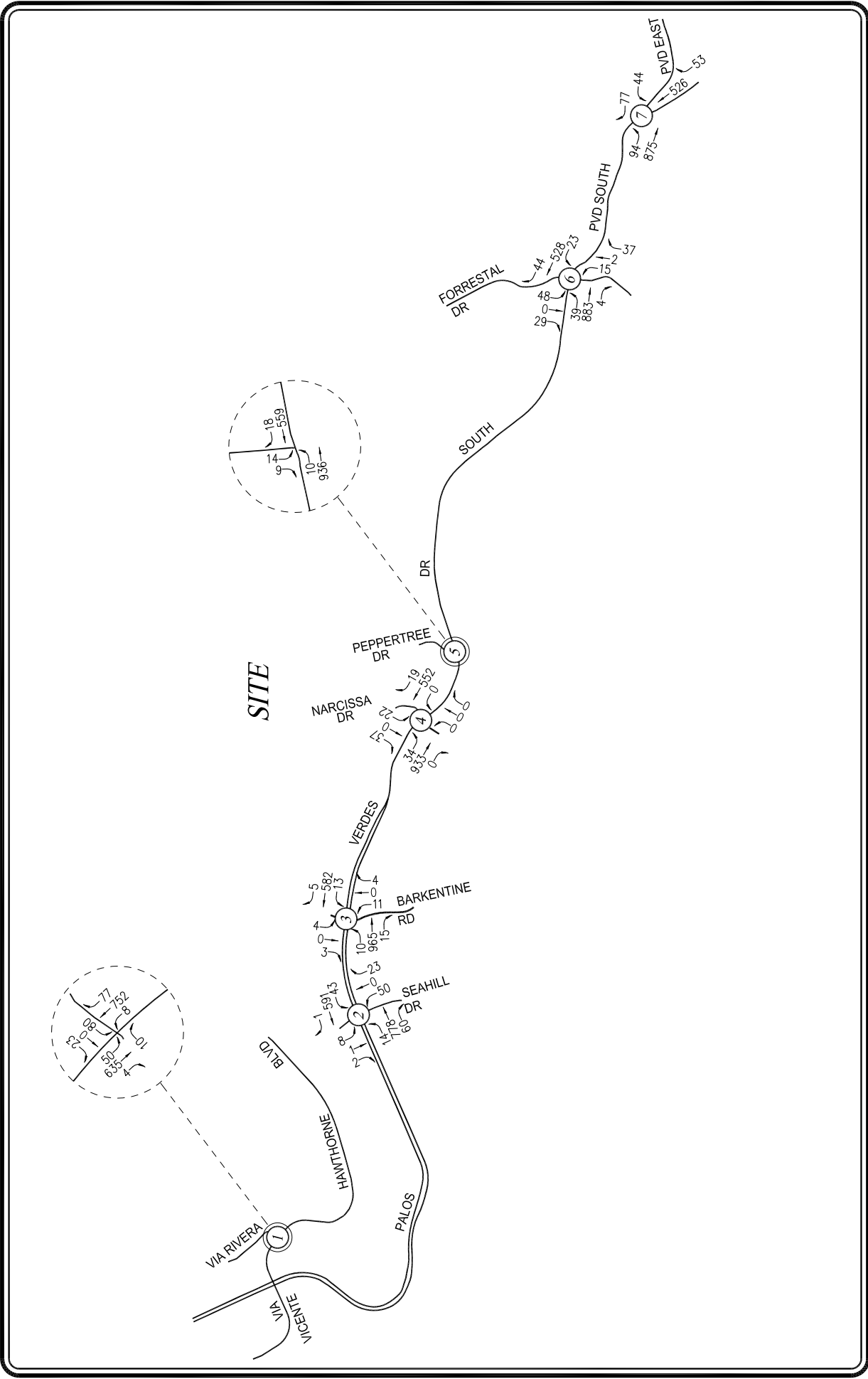


FIGURE 6-12
YEAR 2030 FUTURE WITH PROJECT TRAFFIC VOLUMES
 WEEKDAY PM PEAK HOUR
 ZONE 2 LANDSLIDE MORATORIUM - PORTUGUESE BEND PROJECT

(X) = INTERSECTION NUMBER

NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

7.0 TRANSPORTATION IMPACT ANALYSIS METHODOLOGY

7.1 Impact Criteria and Thresholds

The relative impact of the added project traffic volumes generated by the proposed Zone 2 Landslide Moratorium - Portuguese Bend project during the AM, School PM and PM peak hours was evaluated based on analysis of future operating conditions at the seven study intersections, without, then with the proposed project. The previously discussed capacity analysis procedures were utilized to investigate the future volume-to-capacity relationships and service level characteristics at each study intersection. The significance of the potential project impacts at each key intersection was then evaluated using the traffic impact criteria employed for projects in the City of Rancho Palos Verdes. The City of Rancho Palos Verdes' target for peak hour intersection operation is LOS D or better.

The City of Rancho Palos Verdes has established the following thresholds of significance for unsignalized intersections:

- A significant impact would occur at an unsignalized intersection when the addition of project-generated trips causes the peak hour level of service of the intersection to change from acceptable operation (LOS D or better) to deficient operation (LOS E or F); or
- A significant impact would occur at an unsignalized intersection if the peak hour level of service of the intersection is LOS E or F and the addition of project-generated trips changes the delay by 2.0 seconds or more.

7.2 Transportation Impact Analysis Scenarios

Volume/capacity calculations have been performed for the key study intersections for the following traffic conditions:

- (a) Existing traffic conditions;
- (b) Scenario (a) with project traffic;
- (c) Scenario (b) with mitigation, if necessary.
- (d) Scenario (a) with ambient growth traffic to the Year 2030 at 0.6% per year plus related projects traffic;
- (e) Scenario (d) with project traffic to the Year 2030; and
- (g) Scenario (e) with mitigation, if necessary.

8.0 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

8.1 Existing Conditions

The peak hour Level of Service results at the seven study intersections for the existing conditions are summarized in **Table 8-1**. The first column [1] of HCM/LOS values in *Table 8-1* presents a summary of the existing AM, School PM and PM peak hour traffic conditions (which were also presented in *Table 4-5*). The second column [2] presents projected existing with project traffic conditions based on the addition of the proposed project traffic. The third column [3] shows the change in delay value due to the added peak hour project trips and indicates whether the traffic associated with the project will have a significant impact based on the City of Rancho Palos Verdes LOS standards and the significance impact threshold criteria defined in this report. The HCM data worksheets for the seven analyzed intersections for the weekday AM and PM peak hours are contained in *Appendix B*.

8.1.1 Existing Traffic Conditions

As shown in column [1] of *Table 8-1* (previously presented in *Table 4-5*), two of the seven study intersections are currently operating at acceptable Levels of Service (i.e., LOS D or better) during the weekday AM, School PM and PM peak hours. The following study intersections currently operate at LOS E or F during the peak hours shown below under existing conditions based on the calculated intersection delay (in seconds):

- Int. No. 1: Via Rivera/Hawthorne Blvd. AM Peak Hour: *Delay* = 77.5, LOS F
School PM Peak: *Delay* = 189.0, LOS F
PM Peak Hour: *Delay* = 40.7, LOS E
- Int. No. 2: Tramonto Dr.-Seahill Dr./PV Dr. South School PM Peak: *Delay* = 58.9, LOS F
- Int. No. 4: Narcissa Drive/Palos Verdes Dr. South. AM Peak Hour: *Delay* = 46.6, LOS E
School PM Peak: *Delay* = 52.1, LOS F
PM Peak Hour: *Delay* = 42.4, LOS E
- Int. No. 6. Forrestal Dr./Palos Verdes Dr. South AM Peak Hour: *Delay* = 62.3, LOS F
School PM Peak: *Delay* = 107.7, LOS F
PM Peak Hour: *Delay* = 52.5, LOS F
- Int. No. 7: PV Dr. East./PV Dr. South School PM Peak: *Delay* = 47.0, LOS E

The existing traffic volumes at the study intersections during the weekday AM, School PM and PM peak hours are shown in *Figures 4-3, 4-4 and 4-5*, respectively.

Table 8-1
SUMMARY OF DELAYS AND LEVELS OF SERVICE
WEEKDAY AM, PM, AND SCHOOL PM PEAK HOURS

NO.	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR	[1]		[2]		[3]		[4]		[5]		[6]					
				YEAR 2018 EXISTING DELAY [a]	LOS [b]	YEAR 2018 EXISTING W/ PROJECT DELAY [a]	LOS [b]	CHANGE IN DELAY [2-1]	IMPACT [c]	YEAR 2018 EXISTING W/ PROJECT MITIGATION DELAY [a]	LOS [b]	CHANGE IN DELAY [3-1]	MITL-GATED?	YEAR 2030 PRE-PROJECT W/AM.GROW. & REL. PROJ. DELAY [a]	LOS [b]	YEAR 2030 FUTURE W/ PROJECT DELAY [a]	LOS [b]	CHANGE IN DELAY [5-4]	MITL-GATED?
1	Via Rivera/ Hawthorne Boulevard	Two-Way Stop	AM School PM	77.5 189.0 40.7	F F E	79.5 195.9 41.8	F F E	8.0 7.0 ---	A A ---	-69.5 -182.0 ---	Yes Yes ---	167.2 419.5 73.7	F F F	172.4 427.3 75.9	F F F	8.3 7.3 5.4	A A A	-158.9 -412.2 -68.3	Yes Yes Yes
2	Tramonto Drive-Seahill Drive/ Palos Verdes Drive South	Two-Way Stop	AM School PM	32.6 58.9 31.1	D F D	33.5 62.0 32.3	D F D	---	---	---	---	50.4 126.7 46.7	F F E	52.0 132.4 49.1	F F E	---	---	---	Yes Yes Yes
3	Barkentine Road/ Palos Verdes Drive South	Two-Way Stop	AM School PM	23.3 31.4 26.5	C D D	23.5 32.4 27.2	C D D	---	---	---	---	28.1 43.5 35.4	D E E	28.7 44.4 36.5	D E E	---	---	---	---
4	Narcissa Drive/ Palos Verdes Drive South	Two-Way Stop	AM School PM	46.6 52.1 42.4	E F E	49.7 57.5 45.8	E F E	24.5 25.2 22.6	C D C	-22.1 -26.9 -19.8	Yes Yes Yes	64.4 78.7 61.6	F F F	69.6 90.5 67.4	F F F	5.2 11.8 5.8	D D D	-35.8 -48.4 -34.9	Yes Yes Yes
5	Peppertree Drive/ Palos Verdes Drive South	Two-Way Stop	AM School PM	30.3 31.9 24.5	D D C	29.3 29.6 23.3	D D C	---	---	---	---	37.6 42.2 30.7	E E D	36.3 39.2 29.0	E E D	---	---	---	---
6	Forrestal Drive/ Palos Verdes Drive South	Two-Way Stop	AM School PM	62.3 107.7 52.5	F F F	64.5 114.0 54.2	F F F	25.7 33.7 ---	D D ---	-36.6 -74.0 ---	Yes Yes ---	106.3 227.3 95.1	F F F	106.4 236.4 100.4	F F F	0.1 9.1 5.3	No Yes Yes	-178.8 E -65.3 D	Yes Yes Yes
7	Palos Verdes Drive East/ Palos Verdes Drive South	Two-Way Stop	AM School PM	30.3 47.0 25.0	D E C	30.7 47.5 25.2	D E C	---	---	---	---	41.7 85.4 34.8	E F D	42.5 87.1 35.3	E F E	---	---	---	---

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

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

Control Delay (s/veh)	LOS
<= 10	A
> 10-15	B
> 15-25	C
> 25-35	D
> 35-55	E
> 55-80	F
> 80	F

[c] For unsignalized intersections, the City of Rancho Palos Verdes has established the following thresholds of significance:

- A significant impact would occur at an unsignalized intersection when the addition of project-generated trips causes the peak hour level of service of the intersection to change from acceptable operation (LOS D or better) to deficient operation (LOS E or F); or

- A significant impact would occur at an unsignalized intersection if the peak hour level of service of the intersection is LOS E or F and the addition of project-generated trips changes the delay by 2.0 seconds or more.

8.1.2 Existing With Project Conditions

As shown in column [2] of *Table 8-1*, application of the City's threshold criteria to the "Existing With Project Conditions" scenario indicates that the proposed project is expected to result in significant impacts at four (4) study intersections. According to the City's impact criteria, the following locations are anticipated to be significantly impacted during the peak hours shown below with the addition of project-related traffic:

- Int. No. 1: Via Rivera/Hawthorne Boulevard

AM peak hour *delay* increase of 2.0 seconds [to 79.5 (LOS F) from 77.5 (LOS F)]

School PM peak hour *delay* increase of 6.9 seconds [to 195.9 (LOS F) from 189.0 (LOS F)]

- Int. No. 2: Seahill Drive-Tramonto Drive/Palos Verdes Drive South

School PM peak hour *delay* increase of 3.1 seconds [to 62.0 (LOS F) from 58.9 (LOS F)]

- Int. No. 4: Narcissa Drive/Palos Verdes Dr. South

AM peak hour *delay* increase of 3.1 seconds [to 49.7 (LOS E) from 46.6 (LOS E)]

School PM peak hour *delay* increase of 5.4 seconds [to 57.5 (LOS F) from 52.1 (LOS F)]

PM peak hour *delay* increase of 3.4 seconds [to 45.8 (LOS E) from 42.4 (LOS E)]

- Int. No. 6: Forrestal Drive/Palos Verdes Drive South

AM peak hour *delay* increase of 2.2 seconds [to 64.5 (LOS F) from 62.3 (LOS F)]

School PM peak hour *delay* increase of 6.3 seconds [to 114.0 (LOS F) from 107.7 (LOS F)]

Incremental, but not significant, impacts are noted at the remaining three (3) study intersections. The existing with project traffic volumes at the study intersections during the weekday AM, School PM and PM peak hours are shown in *Figures 6-4, 6-5 and 6-6*, respectively.

8.2 Year 2030 Future Traffic Conditions

The peak hour Level of Service results at the seven study intersections for the Year 2030 horizon year are summarized in *Table 8-1*. Column [4] of HCM/LOS values in *Table 8-1* presents a summary of the projected Year 2030 future pre-project traffic conditions based on future intersection geometry, where applicable, existing traffic volumes with the addition of ambient growth, and related projects traffic volumes. Column [5] presents projected Year 2030 future with project traffic conditions based on the addition of the proposed project traffic. Column [5] shows the change in delay value due to the added peak hour project trips and indicates whether the traffic associated with the project will have a significant impact based on the City of Rancho Palos Verdes LOS standards and the significance impact threshold criteria defined in this report. The HCM data worksheets for the seven analyzed intersections for the weekday AM and PM peak hours are contained in *Appendix B*.

8.2.1 Year 2030 Future Pre-Project Traffic Conditions

The analysis of Year 2030 future pre-project traffic conditions (i.e., existing traffic volumes, ambient growth to Year 2030, and related projects traffic volumes) presented in column [4] of *Table 8-1* indicates that the following study intersections are expected to operate at LOS E or F during the peak hours shown below under Year 2030 future pre-project traffic conditions:

- Int. No. 1: Via Rivera/Hawthorne Blvd. AM Peak Hour: *Delay* = 167.2, LOS F
School PM Peak: *Delay* = 419.5, LOS F
PM Peak Hour: *Delay* = 73.7, LOS E
- Int. No. 2: Tramonto Dr.-Seahill Dr./PV Dr. South AM Peak Hour: *Delay* = 50.4, LOS F
School PM Peak: *Delay* = 126.7, LOS F
PM Peak Hour: *Delay* = 46.7, LOS E
- Int. No. 3: Barkentine Road/PV Dr. South School PM Peak: *Delay* = 43.5, LOS E
PM Peak: *Delay* = 35.4, LOS E
- Int. No. 4: Narcissa Drive/Palos Verdes Dr. South. AM Peak Hour: *Delay* = 64.4, LOS F
School PM Peak: *Delay* = 78.7, LOS F
PM Peak Hour: *Delay* = 61.6, LOS F
- Int. No. 5: Peppertree Drive/PV Dr. South. AM Peak Hour: *Delay* = 37.6, LOS E
School PM Peak: *Delay* = 42.2, LOS E
- Int. No. 6: Forrestal Dr./Palos Verdes Dr. South AM Peak Hour: *Delay* = 106.3, LOS F
School PM Peak: *Delay* = 227.3, LOS F
PM Peak Hour: *Delay* = 95.1, LOS F
- Int. No. 7: PV Dr. East./PV Dr. South AM Peak: *Delay* = 41.7, LOS E
School PM Peak: *Delay* = 85.4, LOS F

The Year 2030 future pre-project traffic volumes at the study intersections during the weekday AM, School PM and PM peak hours are shown in *Figures 6-7, 6-8 and 6-9*, respectively.

8.2.2 Year 2030 Future With Project Conditions

As shown in column [5] of *Table 8-1*, application of the City's threshold criteria to the "Year 2030 Future With Project Traffic Conditions" scenario indicates that the proposed project is expected to contribute on a cumulative basis to significant impacts at five study intersections. According to the City's impact criteria, the following locations are anticipated to be significantly impacted by cumulative growth during the peak hours shown below with the addition of ambient growth, related projects and project-related traffic:

- Int. No. 1: Via Rivera/Hawthorne Boulevard

AM peak hour *delay* increase of 5.2 seconds [to 172.4 (LOS F) from 167.2 (LOS F)]

School PM peak hour *delay* increase of 7.8 seconds [to 427.3 (LOS F) from 419.5 (LOS F)]

PM peak hour *delay* increase of 2.2 seconds [to 75.9 (LOS F) from 73.7 (LOS F)]

- Int. No. 2: Seahill Drive-Tramonto Drive/Palos Verdes Drive South

School PM peak hour *delay* increase of 5.7 seconds [to 132.4 (LOS F) from 126.7 (LOS F)]

PM peak hour *delay* increase of 2.4 seconds [to 49.1 (LOS E) from 46.7 (LOS E)]

- Int. No. 4: Narcissa Drive/Palos Verdes Dr. South

AM peak hour *delay* increase of 5.2 seconds [to 69.6 (LOS F) from 64.4 (LOS F)]

School PM peak hour *delay* increase of 11.8 seconds [to 90.5 (LOS F) from 78.7 (LOS F)]

PM peak hour *delay* increase of 5.8 seconds [to 67.4 (LOS F) from 61.6 (LOS F)]

- Int. No. 6: Forrestal Drive/Palos Verdes Drive South

School PM peak hour *delay* increase of 9.1 seconds [to 236.4 (LOS F) from 227.3 (LOS F)]

PM peak hour *delay* increase of 5.3 seconds [to 100.4 (LOS F) from 95.1 (LOS F)]

- Int. No. 7: Palos Verdes Drive East/Palos Verdes Drive South

PM peak hour *delay* increase of 0.5 seconds [to 35.3 (LOS E) from 34.8 (LOS D)]

Incremental but not significant cumulative traffic impacts are noted at the remaining two (2) study intersections under Year 2030 future with project conditions. The Year 2030 future with project traffic volumes at the study intersections during the weekday AM, School PM and PM peak hours are shown in *Figures 6-10, 6-11 and 6-12*, respectively.

9.0 ROADWAY STREET SEGMENT ANALYSIS

Roadway level of service analyses were prepared for two roadway segments located in the project study area. The following two roadway street segments were selected in consultation with City of Rancho Palos Verdes staff for analysis of potential impacts due to the proposed project:

1. Palos Verdes Drive South west of Narcissa Drive
2. Palos Verdes Drive South east of Narcissa Drive

Automatic 24-hour machine traffic counts were obtained from the City of Rancho Palos Verdes General Plan Update Traffic Impact Analysis. The traffic count data were adjusted by 0.6 percent (0.6%) per year to reflect existing conditions. Copies of the 24-hour machine counts are contained in *Appendix A*.

Consistent with the City of Rancho Palos Verdes General Plan, the analysis of traffic operations on roadway segments was conducted by comparing the daily traffic volumes to the maximum roadway capacity of each facility type. The roadway daily capacities were developed consistent with the HCM *Chapter 16, Urban Street Facilities*, which provides a methodology for developing generalized daily service volumes. The maximum daily capacity values for each roadway type is shown in **Table 9-1**. As noted previously, the acceptable level of service for the City of Rancho Palos Verdes is LOS D.

TABLE 9-1
ROADWAY SEGMENT CAPACITIES BY FACILITY TYPE

Classification	Maximum Two-Way Daily Traffic Volume (LOS E)
4-Lane Divided Arterial	36,100
2-Lane Divided Arterial	17,900
2-Lane Undivided Arterial	17,000
4-Lane Undivided Collector	34,300
2-Lane Divided Collector	17,900

9.1 Year 2030 Future Traffic Conditions

The forecast traffic conditions at the analyzed street segments for existing, year 2030 future pre-project (i.e., existing traffic volumes, ambient traffic growth and related projects traffic volumes) and Year 2030 future with project analysis scenarios are summarized in **Table 9-2**. As presented in Column [3] of *Table 9-2*, one of the roadway segments, Palos Verdes Drive South east of Narcissa Drive segment, will not meet the City's minimum level of service standard. The following improvement is recommended for the Palos Verdes Drive South east of Narcissa Drive segment to reduce the potentially significant impact to less than significant levels.

Table 9-2
ROADWAY SEGMENT LEVELS OF SERVICE SUMMARY

NO.	ROADWAY SEGMENT	FACILITY TYPE	TOTAL CAPACITY [a]	(1) EXISTING TRAFFIC CONDITIONS			(2) YEAR 2030 W/ RELATED PROJECTS TRAFFIC CONDITIONS				(3) YEAR 2030 WITH PROJECT TRAFFIC CONDITIONS			
				DAILY VOL [b]	V/C	LOS	REL. PROJ. VOL [c]	DAILY VOL [d]	V/C	LOS	PROJ VOL [e]	DAILY VOL [f]	V/C	LOS
1	Palos Verdes Drive South west of Narcissa Drive	4-Lane Divided Arterial	36,100	14,112	0.391	A	1,006	16,134	0.447	A	194	16,328	0.452	A
2	Palos Verdes Drive South east of Narcissa Drive	2-Lane Divided Arterial	17,900	15,360	0.858	D	750	17,216	0.962	E	100	17,316	0.967	E

[a] Roadway capacity based on roadway classification and capacities outlined in the City of Rancho Palos Verdes General Plan Update Traffic Impact Analysis, August 2017.

[b] Average Daily Traffic Volumes obtained from the City of Rancho Palos Verdes General Plan Update Traffic Impact Analysis, August 2017. An ambient growth rate of 0.60% per year was assumed to derive the year 2018 existing conditions.

[c] Represents related projects trips based on Table 6-1.

[d] Derived by combining the existing with ambient traffic volumes and the related projects traffic volumes. An ambient growth rate of 0.60% per year was assumed to derive the year 2030 (i.e., future pre-project) traffic volumes based on the 2010 CMP for Los Angeles County document.

[e] Represents net new project trips based on the project trip generation and trip distribution for the proposed Zone 2 Landslide Moratorium - Portuguese Bend project.

[f] Derived by combining the future pre-project traffic volumes and the proposed project volumes.

[g] According to the City of Rancho Palos Verdes General Plan Update, the City of Rancho Palos Verdes considers LOS D as the minimum level of service standard for roadway segments.

- Palos Verdes Drive South east of Narcissa Drive

The recommended mitigation consists of the conversion of Palos Verdes Drive South from a 2-Lane Divided Arterial to a 4-Lane Divided Arterial. It should be noted that this measure is consistent with the improvement proposed in the City of Rancho Palos Verdes General Plan Update. This measure is anticipated to reduce the potentially significant impact to less than significant levels. However, this improvement would require elimination of the existing bicycle lanes along Palos Verdes Drive South, which may not be feasible. Therefore, a significant and unavoidable traffic impact would remain at this location.

10.0 TRANSPORTATION IMPROVEMENT MEASURES

As summarized in Section 8.0, Peak Hour Intersection Analysis, the proposed project is forecast to result in significant traffic impacts at the following study intersections:

- Int. No.1: Via Rivera/Hawthorne Boulevard
- Int. No. 2: Seahill Drive-Tramonto Drive/Palos Verdes Drive South
- Int. No. 4: Narcissa Drive/Palos Verdes Dr. South
- Int. No. 6: Forrestal Drive/Palos Verdes Drive South
- Int. No. 7: Palos Verdes Drive East/Palos Verdes Drive South

The following section provides an overview of transportation improvement measures that are anticipated to address the forecast significant traffic impacts to the local roadway network associated with the proposed project. The following transportation mitigation measures have been considered and if approved and implemented would reduce the project's contribution to the significant transportation impacts at the subject study intersections to less than significant levels.

- Int. No. 1: Via Rivera/Hawthorne Boulevard

The recommended mitigation consists of the funding for the design and installation of a traffic signal at this intersection in order to improve overall operations and assignment of motorist right-of-way. It should be noted that this improvement is listed in the City of Rancho Palos Verdes General Plan Update. As indicated in *Table 8-1*, this measure is anticipated to reduce the potentially significant impact to less than significant levels. If for any reason the City decides against the installation of the traffic signal, the project impact would remain significant and unavoidable.

- Int. No. 2: Seahill Drive-Tramonto Drive/Palos Verdes Drive South

The recommended mitigation consists of providing a two-way left-turn lane on Palos Verdes Drive to better facilitate the northbound left-turn movement (i.e., from Seahill Drive) onto westbound Palos Verdes Drive South. It should be noted that this improvement is listed in the City of Rancho Palos Verdes General Plan Update. By modifying the existing median west of Seahill Drive-Tramonto Drive and restriping the west leg of the intersection, the improvement would provide the necessary area for vehicles to accelerate prior to merging with the westbound Palos Verdes Drive South traffic flow. In addition, the improvement allows northbound left-turns to occur via a sufficient gap in only the eastbound traffic flow versus in both the eastbound and westbound traffic flows as occurs today. As indicated in *Table 8-1*, this measure is anticipated to reduce the potentially significant cumulative impact to less than significant levels.

- Int. No. 4: Narcissa Drive/Palos Verdes Drive South

The recommended mitigation consists of providing a two-way left-turn lane on Palos Verdes Drive, east of Narcissa Drive, to better facilitate the southbound left-turn movement (i.e., exiting from Narcissa Drive) onto eastbound Palos Verdes Drive South. This measure involves converting the existing westbound left-turn lane at Narcissa Drive (i.e., which serves one single-family home) to a two-way left-turn lane in order to provide a refuge area for exiting Narcissa Drive motorists to turn into and wait prior to accelerating to merge with the eastbound Palos Verdes Drive South traffic flow. In addition, the improvement allows southbound left-turns to occur via a sufficient gap in only the westbound traffic flow (i.e., versus requiring a gap in both the eastbound and westbound traffic flows as occurs today). The proposed two-way left-turn lane would also continue to serve any westbound entering left-turns into the single-family home driveway. As indicated in *Table 8-1*, this measure is anticipated to reduce the potentially significant impacts to less than significant levels.

- Int. No. 6: Forrestal Drive/Palos Verdes Drive South

The recommended mitigation consists of providing a two-way left-turn lane on Palos Verdes Drive to provide a deceleration and storage area for left-turn vehicles traveling in either direction. It should be noted that this improvement is listed in the City of Rancho Palos Verdes General Plan Update. As indicated in *Table 8-1*, this measure is anticipated to reduce the potentially significant impact to less than significant levels.

- Int. No. 7: Palos Verdes Drive East/Palos Verdes Drive South

The recommended mitigation consists of providing a two-way left-turn lane on Palos Verdes Drive to provide a deceleration and storage area for left-turn vehicles traveling in either direction. It should be noted that this improvement is listed in the City of Rancho Palos Verdes General Plan Update. As indicated in *Table 8-1*, this measure is anticipated to reduce the potentially significant cumulative traffic impact to less than significant levels.

11.0 CONSTRUCTION ANALYSIS

Project construction would generate traffic from construction worker travel, the arrival and departure of trucks delivering construction materials to the site, and the removal of debris generated by on-site demolition activities. Both the number of construction workers and trucks would vary throughout the construction process. It is important to note that the following construction summary and corresponding analyses assume that *all* 31 homes within the project site would be under construction simultaneously, which is a highly unlikely scenario and extremely conservative. This conservative assumption has been employed for illustrative purposes only so as to identify the maximum potential impact of construction activities in the vicinity.

11.1 Overview of Construction Phases

The construction of the project is anticipated to consist of several main construction work efforts: Demolition/Site Preparation/Grading, Building Construction, and Paving/Architectural Coating. The total construction period is anticipated to last approximately 48 months within the above six general periods or phases of construction. The following provides a general overview of the various phases of construction, based on information provided by the environmental consultant: Phase 1 (two months) consists of demolition; Phase 2 (roughly one and one-half months) consists of site preparation, Phase 3 (almost four months) consists of grading, Phase 4 (36 months) consists of building construction activities, Phase 5 (two and one-half months) consists of paving, and Phase 6 (two and one-half months) consists of architectural coating.

11.1.1 Demolition/Site Preparation/Grading

Construction would initially begin with the demolition and removal of any existing on-site secondary structure/s and landscaping. It is anticipated that equipment needs would include heavy machinery such as a concrete/industrial saw, rubber-tired dozers and excavators, and other miscellaneous machinery. During the peak period of this phase, a work force of seven construction workers per lot or a total of 217 construction workers for the entire project would be necessary and workers would occur in two general shifts. This phase is anticipated to take two months to complete and assumes all 31 homes are under construction simultaneously (a highly unlikely scenario).

The site preparation phase includes heavy construction equipment which would be located on-site during site preparation activities and would not travel to and from the project site on a daily basis. It is anticipated that equipment needs associated with site preparation activities would include rubber-tired dozers, tractors/loaders/backhoes, and other miscellaneous machinery. During the peak period of this phase, a work force of a nine construction workers per lot or a total of 279 construction workers for the entire project would be necessary. This work is estimated to take roughly one and one-half months to complete, after completion of the building demolition and assumes all 31 homes are under construction simultaneously (a highly unlikely scenario).

The grading phase includes heavy construction equipment which would be located on-site during site grading activities and would not travel to and from the project site on a daily basis. It is anticipated that equipment needs associated with grading activities would include an excavator, a grader, rubber-tired dozer, scraper, a tractor/loader/backhoe and other miscellaneous machinery. In addition, ten-wheel dump trucks (i.e., the smaller 10 cubic yard capacity dump trucks) would be utilized in this area for any import of fill material. It is assumed that no more than 50 cubic yards of fill per lot would need to be imported. During the peak period of this phase, a work force of six construction workers per lot or a total of 186 construction workers for the entire project would be necessary. This work is estimated to take roughly four months to complete, after completion of the site preparation phase and assumes all 31 homes are under construction simultaneously (a highly unlikely scenario).

11.1.2 *Building Construction*

Building construction of the project consists of all aspects of building construction with the exception of paving and architectural coatings. It is anticipated that equipment needs associated with these building construction activities would include a crane, fork-lifts, generator sets, concrete pump, cement and mortar mixers and air compressors, skill saws and power drills, tractor/loader/backhoes, welders, as well as miscellaneous machinery. During the peak period of this building construction phase, a work force of eight construction workers per lot or a total of 248 construction workers for the entire project would be necessary. Based on a similar residential project, it is estimated that two trucks per day per home is anticipated to be generated to/from the project site during building construction activities. Thus, a total of 62 material delivery trucks per day are anticipated during this phase of construction. Building construction is anticipated to take approximately 34 months to complete and assumes all 31 homes are under construction simultaneously (a highly unlikely scenario).

11.1.3 *Paving/Architectural Coating*

The paving phase includes heavy construction equipment which would be located on-site during site preparation activities and would not travel to and from the project site on a daily basis. It is anticipated that equipment needs associated with paving activities would include pavers, paving equipment, and rollers. During the peak period of this phase, a work force of seven construction workers per lot or a total of 217 construction workers for the entire project would be necessary. This work is estimated to take roughly two and one-half months to complete, after completion of the building construction and assumes all 31 homes are under construction simultaneously (a highly unlikely scenario).

The architectural coating phase includes some heavy construction equipment which would be located on-site during site grading activities and would not travel to and from the project site on a daily basis. It is anticipated that equipment needs associated with architectural coating activities would include air compressors and miscellaneous machinery. During the peak period of this phase, a work force of two construction workers per lot or a total of 62 construction workers for the entire project would be necessary. This work is estimated to take roughly two and one-half months to

complete, after completion of the paving phase and assumes all 31 homes are under construction simultaneously (a highly unlikely scenario).

11.2 Construction Traffic Trip Generation

It is assumed that the homesites would be cleared and that after completion of the first three phases of short-term construction activities (i.e., demolition, site preparation and grading) building construction would commence. The equipment staging area during the construction period would occur on-site. Building construction activities are anticipated to occur between the hours of 7:00 AM and 7:00 PM, with two shifts of construction workers.

Activities related to the building construction (Phase 4) have been determined to generate the greatest number of vehicle trips compared to the other phases of construction. Thus, the greatest potential for impact on the adjacent street system would occur during the building construction phase when the peak construction workforce is present and truck trip generation is also at its highest level. As stated previously, it is important to note that the following construction summary and corresponding analyses assume that *all* 31 homes within the project site would be under construction simultaneously, which is a highly unlikely scenario and extremely conservative. This conservative assumption has been employed for illustrative purposes only so as to identify the maximum potential impact of construction activities in the vicinity.

11.2.1 Peak Construction Worker Demand

During the peak period of construction activities (Phase 4), a work force of 248 construction workers would be required assuming eight workers per lot and the highly unlikely scenario of *all* 31 homes under construction at the same time. Based on information provided by the environmental consultant, the construction workers would work in two shifts, with the first shift beginning at 7:00 AM and ending at 3:00 PM, and the second shift beginning at 11:00 AM and ending at 7:00 PM. Therefore, these particular construction workers would arrive and depart the project site during off-peak hours (the peak hour of traffic at the study intersections in the vicinity of the site primarily occurs between approximately 7:45 AM and 8:45 AM during the morning commuter period and between approximately 5:00 and 6:00 PM during the afternoon commuter period). It is anticipated that construction workers would remain on-site throughout their shift.

The number of construction worker vehicles is estimated using an average vehicle ridership (AVR) of 1.135 persons per vehicle (as provided in the South Coast Air Quality Management District in its CEQA Air Quality Handbook). Therefore, it is estimated that up to 220 vehicles (220 inbound trips and 220 outbound trips) on a daily basis would be generated by the construction workers during the peak construction phase (i.e., building construction) of the project area. For the first shift, the inbound construction worker trips (i.e., 110 inbound trips) would occur outside/before the AM commuter peak hour and the outbound worker trips (i.e., 110 outbound trips) would occur outside/before the PM commuter peak hour, however would experience some overlap during the School PM peak hour. It is assumed that 50% of the outbound first shift workers would overlap with the School PM peak hour (i.e., 55 vehicle trips). For the second shift, the inbound construction

worker trips (i.e., 110 inbound trips) would occur outside/before the PM commuter peak hour and the outbound worker trips (i.e., 110 outbound trips) would occur outside/after the PM commuter peak. Thus, the first shift worker arrivals and second shift worker arrivals and departures would occur outside of the morning and afternoon peak commuter hours of the local street system.

11.2.2 *Peak Construction Truck Demand*

In addition to construction worker vehicles, additional trips may be generated by miscellaneous trucks traveling to and from the project area. These trucks may consist of larger vehicles delivering equipment and/or construction materials to the project area, or smaller pick-up trucks or four-wheel drive vehicles used by construction supervisors and/or City inspectors. Heavy construction equipment would be located on-site during the building construction activities and would not travel to and from the project site on a daily basis.

Based on a similar residential project, it is estimated that two trucks per day per home is anticipated to be generated to/from the project site during peak building construction activities. Thus, based on 31 proposed dwelling units, a maximum of 62 material delivery trucks per day are anticipated to be generated to/from the project site during construction activities. Therefore, peak truck trip generation would total up to 124 truck round-trips per day (62 inbound trucks and 62 outbound trucks) are anticipated. Assuming a material delivery period of 12 hours per day (beginning at 7:00 AM, with the last delivery at 7:00 PM), this corresponds to a total of six (6) trucks per hour (i.e., 6 inbound trucks and 6 outbound trucks per hour). Since construction trucks are larger in size than passenger vehicles, a passenger car equivalency (PCE) factor has been applied to the forecast truck trip generation in order to account for their effect on intersection operations. Thus, with incorporation of the PCE factor of two (2.0) the PCE truck trip generation is estimated at 12 inbound and 12 outbound truck trips per hour.

It is anticipated that delivery trucks/construction equipment would be brought onto the project site and be stored within the perimeter fence of each construction site, thus, no staging is expected to occur on the perimeter public streets. Therefore, detours around the construction sites would not be required. Flagmen, however, would be used to control traffic movement during the ingress or egress of trucks and heavy equipment from each construction site. As noted below in Section 11.5, a Construction Traffic Control Plan may be required by the City to be developed to minimize potential conflicts between construction activity and through traffic.

Construction worker parking is anticipated to occur primarily within each lot. As noted in the emergency access and evacuation section, current roadway widths (as measured in the field from edge of pavement to edge of pavement) within the Portuguese Bend area typically vary between 20 and 24 feet in width. Several of the internal private roadways also have areas off road that might provide sufficient width for several construction worker vehicles, although not recommended. Refer to the emergency access and evacuation section for further discussion of the traffic analysis during times of an emergency and subsequent evacuation.

11.2.3 Peak Construction Traffic Generation Summary

During peak building construction activities (assuming conservatively that *all 31* lots are under construction concurrently which is highly unlikely), construction worker vehicles and trucks are forecast to generate 468 PCE vehicle trips per day (220 daily worker vehicle trips and 248 PCE daily truck trips). As summarized in Sections 11.2.1 and 11.2.2, this corresponds to a total of 24 PCE trips during the AM peak hour (i.e., 12 inbound and 12 outbound PCE vehicle trips), 79 PCE trips during the School PM peak hour (i.e., 12 inbound and 67 outbound PCE vehicle trips), and 24 PCE trips during the PM peak hour (i.e., 12 inbound and 12 outbound PCE vehicle trips). Given that the proposed project upon operation is expected to generate 23 and 31 vehicle trips during the weekday AM and PM peak hours, respectively resulting in five significant traffic impacts, it can be concluded based on the comparative review of trip generation that on a temporary basis construction activities will also result in significant traffic impacts during this peak phase. Since construction activities are temporary in nature, it is conservatively concluded that construction traffic impacts would be significant and unavoidable.

11.3 Haul Routes

Approvals by the City of Rancho Palos Verdes may be required for the implementation of a Truck Haul Route program for the project and would be subject to review by the City of Rancho Palos Verdes Department of Public Works. Based on current plans, haul trucks and delivery trucks would access the site via Palos Verdes Drive South. Haul routes to and from the project area would therefore require approval from the City of Rancho Palos Verdes Department of Public Works.

11.4 Construction Effects on Existing Roads

A review was conducted of the potential effects of project-related construction vehicles on the existing pavement integrity for roads within the Portuguese Bend Community. Based on review of the Portuguese Bend Community Association publications, it is noted that all roads behind the Portuguese Bend gates on Narcissa Drive and Peppertree Drive (i.e., located north of Palos Verdes Drive South) are private, including land (whether vacant or developed). As such, the design and maintenance of private streets is not the responsibility of the City of Rancho Palos Verdes, and therefore these streets may or may not meet accepted design standards, and in some cases are not in keeping with customary maintenance standards.

Further research was conducted of the Covenants, Conditions and Restrictions (CC&Rs) for the Portuguese Bend Community Association as it relates to the purposes, memberships and maintenance charges. The Association has the right and power to purchase, construct, improve, repair, maintain, among others, and hold easements for or the fee to improve, light and maintain streets, roads, alleys, trails, bridle paths, walks, gateways, among others. The owners of lots within the Portuguese Bend Community Association must therefore pay and fund the appropriate general charges, assessments and liens in this regard. Damage caused to any private roadways within the community as a result of construction activities within the community is therefore the responsibility of the Association to repair.

11.5 Construction Traffic Impacts

Based on the comparative review of trip generation between the project's operational trip generation and temporary construction trip generation, construction impacts are conservatively forecast to be significant and unavoidable. With the required haul route approval, the off-peak arrival and departure of construction workers and the other construction management practices, impacts would be reduced to the extent feasible with the implementation of the following design features:

- Maintain existing access for land uses in proximity of the project site;
- Limit any potential lane closures to off-peak travel periods;
- Schedule receipt of construction materials during non-peak travel periods, to the extent possible;
- Coordinate deliveries to reduce the potential of trucks waiting to unload for extended periods of time; and
- Prohibit parking by construction workers on adjacent streets and direct construction workers to available parking as determined in conjunction with City staff.

In order to minimize potential conflicts between construction activity and through traffic, a Construction Traffic Control Plan may be required by the City to be developed for use during project construction. The Construction Traffic Control Plan would identify all traffic control measures, signs, and delineators to be implemented by the construction contractor through the duration of demolition and construction activity. In addition, the City of Rancho Palos Verdes would review and be responsible for approval of any proposed Truck Haul Route program.

12.0 EMERGENCY ACCESS AND EVACUATION REVIEW

An emergency access and evacuation review has been prepared to determine the estimated amount of time (i.e., clearing time) needed for area residents to evacuate the area in the event of a major incident (e.g., wildland fire). This analysis has been performed assuming existing and full development of the proposed project (i.e., a total of approximately 165 homes planned within the Portuguese Bend community/association).

The City utilizes Los Angeles County for both fire and public safety services and emergency “first responder” responsibilities are implemented by the County without the requirement or need of City staff involvement. In the case of the August 27, 2009 brush fire in the Portuguese Bend area of the City, while the County was the primary responding agency, the City did play an important and supporting role during the incident to disseminate information to the residents, City Council and City staff. A summary report following the incident was prepared and presented to the City Council (report dated October 20, 2009). That report provided an overview of lessons learned as well as details regarding the Los Angeles County Emergency Mass Notification System, emergency communications procedures, the management and coordination of recovery operations, among others.

Research has been conducted with respect to existing emergency evacuation procedures. Residents are directed to several preparedness documents and procedures, such as those contained in the *Ready! Set! Go! Your Personal Wildfire Action Plan*, published by the County of Los Angeles Fire Department, and *Emergency Survival Guide*, published by the County of Los Angeles Office of Emergency Management. Several fire protection plans for various communities have also been researched as part of this section. In addition, an evacuation study entitled *Modeling Small Area Evacuation: Can Existing Transportation Infrastructure Impede Public Safety?*, April 2002 prepared by Vehicle Intelligence and Transportation Analysis Laboratory, University of California, Santa Barbara and a paper entitled *Public Safety in the Urban-Wildland Interface: Should Fire-Prone Communities Have a Maximum Occupancy?*, contained in the National Hazards Review, August 2005, were reviewed in detail as part of this analysis.

12.1 Emergency Access Summary

The Portuguese Bend area of Rancho Palos Verdes is a private community that is served by two primary access points; one access point via Narcissa Drive (on the west end) and one access point via Peppertree Drive (on the east end). Both of these access points are gated north of Palos Verdes Drive South and are used by residents to access other local private roadways and their respective homes. A total of approximately 165 homes are planned within the Portuguese Bend community/association, including 111 homes in the project area (i.e., which includes the 31 additional single-family homes analyzed as part of the proposed project, the 11 entitled lots, as well as 69 developed lots within the project area).

Field observations have been conducted in order to verify existing signage, traffic control and pavement widths associated with the private roadways within the Portuguese Bend area. Narcissa

Drive has a pavement width of roughly 23 feet north of the existing gate (north of Palos Verdes Drive South) and the pavement width generally varies between 22 feet and 24 feet in width along its length. Peppertree Drive has a pavement width of roughly 22 feet north of the existing gate (north of Palos Verdes Drive South) and the pavement width generally varies between 22 feet and 24 feet in width along its length. Based on field observations conducted along the private roadways it is recommended that these access roads be posted with “No Parking – Fire Lane” signs. The roadways are of sufficient width to allow large vehicles (i.e., fire engine type trucks) to access the Portuguese Bend area. It should also be noted that the majority of the roadways are not fully improved (e.g., with formal curb and gutter) thus, the above widths and measurements reflect the edge of pavement widths. Additional (i.e., unimproved) width is available along many portions of the roadways, however.

Two fire stations are located within the project study area: Fire Station #53 (located at 6124 Palos Verdes Drive South, Rancho Palos Verdes, CA 90275) and Fire Station #83 (located at 83 Miraleste Plaza, Rancho Palos Verdes, CA 90275). In addition, it is important to note that the County’s Division I Battalion 14 Headquarters is located at Fire Station #106 in Rolling Hills Estates. These first response teams will utilize Palos Verdes Drive South to access either Narcissa Drive or Peppertree Drive in order to respond to a fire incident as well as other fire access roads. Further, it is expected that the gates located at both public gateways will be set/controlled to remain open during an evacuation period.

As part of controlling access to and from an evacuation area for a wildland fire within the Portuguese Bend area, nearby roadways will be closed by law enforcement agencies to inbound traffic with the exception for public safety vehicles. Therefore, a minimum of one travel lane will remain open at all times. Any closed roads or traffic closure points would be identified by County emergency personnel and fire staging areas would be set up for public safety officials and equipment. These staging areas would be located where resources can be placed while waiting for tactical assignment to combat wildland fires.

Further, as required by the California Vehicle Code (Section 21806, authorized Emergency Vehicles), motorists are required to pull to the right side of the highway and stop to allow an emergency vehicle to pass. If required, drivers of emergency vehicles are trained to utilize center turn lanes, or travel in opposing through lanes to pass through and traverse crowded or tight areas. Thus, the respect entitled to emergency vehicles and driver training allow emergency vehicles to negotiate typical as well as atypical street conditions in urban and rural areas.

12.2 Evacuation Summary

Evacuation from a wildfire should be the number one priority that the public can exercise to protect themselves. The law enforcement agencies’ primary responsibility during a wildland fire is to assist in evacuation of an area. Residents are expected to follow the evacuation routes as communicated and directed by Los Angeles County fire personnel via local roads and onto either Narcissa Drive or Peppertree Drive to exit the area via Palos Verdes Drive South.

12.3 Evacuation Evaluation

An evaluation was prepared to determine the estimated amount of time (i.e., clearing time) needed for area residents to evacuate the Portuguese Bend area in the event of a nearby wildland fire.

12.3.1 *Number of Residential Units in the Portuguese Bend Area to be Evacuated*

A study documenting the number of existing residential units and potential future residential units for the Portuguese Bend area that would utilize either Narcissa Drive or Peppertree Drive to evacuate has been prepared. The existing and future residential units were separated by street segment first and then combined and the results are presented in **Table 12-1**. As stated above, the number of existing and potential units for the entire Portuguese Bend community is forecast to total approximately 165 units. Based on field observations and use of aerial photography, a total of roughly 54 homes exist outside of the project area, with roughly 26 expected to predominantly utilize Narcissa Drive and 28 expected to predominantly utilize Peppertree Drive during an evacuation. The project area consists of approximately 64 developed lots as well as the potential development of up to 31 additional lots. Given an overall gateway distribution of 56 percent via Narcissa Drive and 44 percent via Peppertree Drive associated with the future potential homes (i.e., 18 via Narcissa Drive and 13 via Peppertree Drive) the total number of existing and future homes expected to evacuate via Narcissa Drive totals 86 homes (i.e., 68 existing and entitled and up to 18 future homes) and via Peppertree Drive totals 79 homes (i.e., 66 existing and entitled and up to 13 future homes).

12.3.2 *Forecast Trip Generation and Evacuation Clearing Times – Future Conditions*

Based on the above referenced technical documents, it is conservatively estimated that during an evacuation, two vehicles per residential unit will be evacuated. It should be noted that this can be considered a conservative assumption, as not every residential unit would be occupied during an evacuation nor would every home have two drivers present in order to evacuate two vehicles. The total forecast trip generation for the existing and future homes within the Portuguese Bend area by gateway is presented in **Table 12-2**. As shown in **Table 12-2**, approximately 172 vehicles are forecast to exit via Narcissa Drive and 158 vehicles are forecast to exit via Peppertree Drive.

An evacuation study, *Modeling Small Area Evacuation: Can Existing Transportation Infrastructure Impede Public Safety?*, April 2002 was prepared by Vehicle Intelligence and Transportation Analysis Laboratory, University of California, Santa Barbara to document the modeled clearing times for a neighborhood similar in nature to the Portuguese Bend community in Rancho Palos Verdes. That neighborhood contained a total of two access points and the internal roadways comprised of one lane in each direction. As part of the study, three five-minute intervals were used to separate the forecast trip generation in which 30 percent of the total number of vehicles evacuate within the first five minutes, 50 percent evacuated in the next five minutes, and 20 percent evacuate in the next five minutes.

The *Modeling Small Area Evacuation: Can Existing Transportation Infrastructure Impede Public Safety?* study modeled the evacuation clearing times for several scenarios. For the purposes of this

Table 12-1
POTENTIAL BUILDOUT OF SINGLE-FAMILY DWELLING UNITS
IN THE PORTUGUESE BEND AREA - EVACUATION ROUTE SCENARIO [1]

Location	Existing Units Outside of Project Area	Developed Lots Within Project Area	Potential Units (Proposed Project)	Total Units
Narcissa Drive north of Palos Verdes Drive South	26	42	18	86
Peppertree Drive north of Palos Verdes Drive South	28	38	13	79
Total	54	80	31	165

[1] Source: Based on field observations, existing aerial photography, and the project description.

Table 12-2
FORECAST OF TRIP GENERATION AND CLEARING TIMES
PORTUGUESE BEND AREA - BUILDOUT
EVACUATION ROUTE SCENARIO

Location	[1] Total Evacuation Forecast Trips [a]	[2] First Five Minutes of Evacuation [b]		[3] Second Five Minutes of Evacuation [b]		[4] Third Five Minutes of Evacuation [b]	
		Forecast Trips [a]	Clearing Time [c] (Minutes)	Forecast Trips [a]	Clearing Time [c] (Minutes)	Forecast Trips [a]	Clearing Time [c] (Minutes)
Narcissa Drive north of Palos Verdes Drive South	172	52	0.7	86	1.1	34	0.5
Peppertree Drive north of Palos Verdes Drive South	158	47	0.6	79	1.1	32	0.4

[a] It is estimated that two vehicles per residential unit would be used during evacuation. Note that this is a conservative assumption as not every residential unit would be occupied during evacuation. A total of 86 and 79 homes are expected to evacuate via the Narcissa Drive and Peppertree Drive gateways, respectively.

[b] The forecast trips were separated into three five-minute intervals in which 30% of the total number of vehicles evacuate in the first five minutes, 50% evacuate in the next five minutes, and 20% evacuate in the next five minutes. The five-minute intervals were based on information documented in the "Modeling Small Area Evacuation: Can Existing Transportation Infrastructure Impede Public Safety", by Vehicle Intelligence & Transportation Analysis Laboratory, University of California, Santa Barbara, April 2002.

[c] An average of 74.9 cars per minute was used to determine the clearing time during evacuation. This average was based on the clearing times documented in the "Modeling Small Area Evacuation: Can Existing Transportation Infrastructure Impede Public Safety", by Vehicle Intelligence & Transportation Analysis Laboratory, University of California, Santa Barbara, April 2002. It should be noted that the 74.9 cars per minute rate assumes traffic control and inbound traffic closures in the area.

evaluation, it was assumed that some traffic closures and traffic control officers would be posted at the critical intersections to quickly process vehicles evacuating the area. The referenced study modeled an evacuation clearing time for residential units, with two vehicles evacuating per unit, traffic closures, and traffic control at 74.9 vehicles per minute. The average 74.9 vehicles per minute evacuation clearing time was therefore used to determine the evacuation clearing time for the Portuguese Bend area.

As shown in column [3] of *Table 12-2*, which is the condition with highest amount of vehicles evacuating (i.e., 50 percent evacuated in the second five minutes), it is estimated that the clearing time to evacuate the vehicles traveling south on Narcissa Drive is approximately 1.1 minutes and the time to evacuate the vehicles traveling south on Peppertree Drive is approximately 1.1 minutes. It should be noted that this analysis assumes traffic control will be present during the time of a potential emergency evacuation and it is likely that motorists will not need to stop at every posted stop sign. While the vehicles exiting via Narcissa Drive and Peppertree Drive will likely overlap with the beginning of the next five minutes of evacuation, it is conservative as emergency responders typically will order evacuations more in advance than the 15-minute time period. As stated above, it is recommended within the industry that a total evacuation time of 20 minutes or less is ideal, but in no case should exceed 30 minutes. Therefore, the clearance time interval findings summarized in *Table 12-2* are found to be within an acceptable range for evacuation purposes.

With intervention (i.e., traffic control) and education, evacuation problems can be avoided. First, education is important so that neighborhood residents know to park their vehicles facing the street during high fire risk periods. Second, education is needed to convince residents that taking all of their vehicles, while it would save personal property, would add additional time beyond what is absolutely needed to clear the neighborhood during an emergency. Third, residents in high fire risk areas should be prepared with pre-packed emergency supplies and critical documents such that a quick departure from home can be obtained when the order to evacuate is given by City/County emergency response team/s. Finally, residents can take action (e.g., clearing brush) that may mitigate the extreme conditions of a wildfire near their homes.

12.3.3 *Proposed Minimum Exits – For Evacuations*

The *Public Safety in the Urban-Wildland Interface: Should Fire-Prone Communities Have a Maximum Occupancy?*, National Hazards Review, August 2005 article, was also reviewed in detail in order to verify the validity of the number of exiting roadways to adequately serve the Portuguese Bend community during times of an emergency evacuation. The article notes the proposed minimum exits for interface communities as contained in Table 4 (Proposed Minimum Exits Table for Interface Communities).

As indicated in the above referenced table, for a total number of households of between 51 and 300 homes, the minimum number of exiting roads is two (2) and the maximum number of households per exit totals 150 homes. As the community has been constructed with two exiting roads and a total of 86 and 79 total households are forecast to exit the Narcissa Drive and Peppertree Drive gateways,

respectively, the design of the roadway system with respect to number of exiting roadways and number of households per exit is concluded to be adequate for emergency evacuation purposes.

12.4 Equestrian Evacuation

Several preparedness documents and procedures are available for horse owners, such as those contained in the *Are You and Your Horses Prepared for an Emergency Event?*, published by the County of Los Angeles Department of Animal Care and Control. Owners are urged to evacuate early, as soon as an Evacuation Warning is issued rather than wait for an Evacuation Order. It is vital for horses to be evacuated early as the roads can become too crowded to safely move a horse trailer from threatened areas and to prevent horse trailers from interfering with emergency response vehicles. Horse owners are encouraged to teach/train horses to load into a trailer and have a working trailer available during the fire season. It is important to note that the above evacuation clearing times assume that equestrian owners and the Los Angeles County Equine Response Team have voluntarily evacuated their horses and that the owners return to evacuate via their personal vehicle/s.

The Los Angeles County Equine Response Team (ERT) has previously addressed the City of Rancho Palos Verdes Equestrian Committee regarding the Fire Department's coordination and request regarding preplans for equine evacuation in case of a wildland fire. ERT is a team of specially trained volunteers that provide emergency evacuation and temporary sheltering for horses and livestock in need of evacuation care. ERT has sites that can be used for emergency equine evacuation pick-up, thus allowing the ERT to pick-up the horse/s and transport them to emergency shelters. Given that one inbound travel lane will be maintained during an evacuation period to allow for entry of emergency vehicles, equestrian evacuation will be possible.

12.5 Construction Traffic Implications During an Evacuation

As summarized in *Table 12-2*, and concluded above, it is estimated that the clearing time to evacuate resident vehicles traveling south on Narcissa Drive and Peppertree Drive can occur within an acceptable range for evacuation purposes. These estimates assume that all 31 homes proposed as part of the project have been completed and occupied.

Based on the construction analysis contained herein, it was conservatively determined that the maximum construction activity in terms of construction trip generation would occur during the building construction phase given the highly unlikely scenario of all 31 homes being under construction at the same time. Accounting for the addition of the construction worker and construction truck trip generation/vehicles (while subtracting the future resident vehicles from the evacuation analysis), the above evacuation clearance times would increase slightly to 1.4 minutes for Narcissa Drive and 1.3 minutes for Peppertree Drive, respectively. It should also be noted that the provisions for resident evacuation would also apply to construction-related vehicles and personnel. Therefore, it can be concluded that these clearance times would increase by 0.3 minutes (18 seconds) and 0.2 minutes (12 seconds) for the Narcissa Drive and Peppertree Drive access points, respectively.

13.0 CONGESTION MANAGEMENT PROGRAM TRAFFIC IMPACT ASSESSMENT

The Congestion Management Program (CMP) is a state-mandated program that was enacted by the State Legislature with the passage of Proposition 111 in 1990. The program is intended to address the impact of local growth on the regional transportation system.

As required by the *2010 Congestion Management Program for Los Angeles County*, a Traffic Impact Assessment (TIA) has been prepared to determine the potential impacts on designated monitoring locations on the CMP highway system. The analysis has been prepared in accordance with procedures outlined in the *2010 Congestion Management Program for Los Angeles County*, County of Los Angeles Metropolitan Transportation Authority, October 2010.

13.1 Freeways

No CMP freeway monitoring locations are located in the project vicinity. Further, the CMP TIA guidelines require that freeway monitoring locations must be examined if the proposed project will add 150 or more trips (in either direction) during either the AM or PM weekday peak hours. The proposed project will not add 150 or more trips (in either direction), during either the AM or PM weekday peak hours to the CMP freeway monitoring location, which is the threshold for preparing a traffic impact assessment, as stated in the CMP manual. Therefore, no further review of potential impacts to freeway monitoring locations that are part of the CMP highway system is required.

13.2 Intersections

The following CMP intersection monitoring locations in the project vicinity have been identified:

<u>CMP Station</u>	<u>Intersection</u>
▪ Int. No. 58	Pacific Coast Highway at Western Avenue
▪ Int. No. 84	Western Avenue at 9 th Street
▪ Int. No. 128	Western Avenue at Toscanini Drive
▪ Int. No. 151	Pacific Coast Highway at Crenshaw Boulevard
▪ Int. No. 152	Pacific Coast Highway at Hawthorne Boulevard
▪ Int. No. 153	Pacific Coast Highway at Palos Verdes Boulevard

The CMP TIA guidelines require that intersection monitoring locations must be examined if the proposed project will add 50 or more trips during either the AM or PM weekday peak hours. The proposed project will not add 50 or more trips, during the AM or PM peak hours at the CMP monitoring intersections, which is the threshold for preparing a traffic impact assessment, as stated in the CMP manual. As such, no further review of potential impacts to intersection monitoring locations that are part of the CMP highway system is required.

13.3 Transit Impact Review

As required by the *2010 Congestion Management Program for Los Angeles County*, a review has been made of the CMP transit service. Existing transit service is provided in the vicinity of the proposed project.

The project trip generation, as shown in *Table 5-1*, was adjusted by values set forth in the CMP (i.e., person trips equal 1.4 times vehicle trips, and transit trips equal 3.5 percent of the total person trips) to estimate transit trip generation. Pursuant to the CMP guidelines, the proposed project is forecast to generate demand for two (2) transit trip during the weekday AM peak hour, two (2) transit trips during the weekday PM peak hour, and 15 daily transit trips during the weekday. The calculations are as follows:

- Weekday AM Peak Hour = $23 \times 1.4 \times 0.035 = 2$ Transit Trips
- Weekday PM Peak Hour = $31 \times 1.4 \times 0.035 = 2$ Transit Trips
- Weekday Daily Trips = $293 \times 1.4 \times 0.035 = 15$ Transit Trips

As shown in *Table 4-2*, five bus transit lines and routes are provided adjacent to or in close proximity to the project site, with two of these transit lines and routes directly serving the Portuguese Bend community. A total of two different bus transit providers provide service within the study area. As outlined in *Table 4-2* under the “No. of Buses During Peak Hour” column, these five transit lines provide service for an average (i.e., an average of the directional number of buses during the peak hours) of approximately 13 buses during the AM peak hour and roughly 11 buses during the PM peak hour. Therefore, based on the above calculated peak hour transit trips, this would correspond to less than one transit rider per bus. Thus, given the low number of generated transit trips per bus, no impacts on existing or future transit services in the project area are expected to occur as a result of the proposed project.

14.0 SUMMARY AND CONCLUSIONS

- **Project Description** – The City of Rancho Palos Verdes is considering revisions to its Landslide Moratorium Ordinance that would facilitate the future development of 31 additional single-family residences on undeveloped lots within a portion of the City’s Portuguese Bend community.
- **Vehicular Site Access** – Access to the existing Portuguese Bend community of Rancho Palos Verdes and the proposed project is provided via Narcissa Drive and Peppertree Drive on Palos Verdes Drive South.
- **Study Scope** – A total of seven study intersections and two street segments were selected for analysis in consultation with City of Rancho Palos Verdes staff in order to determine potential traffic impacts related to the proposed project.
- **Project Trip Generation** – The proposed project is expected to generate 23 vehicle trips (6 inbound trips and 17 outbound trips) during the AM peak hour. During the PM peak hour, the proposed project is expected to generate 31 vehicle trips (20 inbound trips and 11 outbound trips). Over a 24-hour period, the proposed project is forecast to generate 293 daily trip ends during a typical weekday (approximately 147 inbound trips and 147 outbound trips). For purposes of this analysis, the weekday PM peak hour project traffic generation was assumed to also comprise the School PM peak hour project traffic generation in order to provide a conservative forecast of potential traffic impacts.
- **Related Projects** – The City of Rancho Palos Verdes, City of Rolling Hills Estates, and City of Los Angeles Departments of Transportation and Planning were consulted to obtain the list of development projects (related projects) in the area. A total of 22 related projects was identified and considered as part of the cumulative traffic analysis.
- **Intersection Traffic Impact Analysis** – Application of the City’s threshold criteria to the “With Project” scenario indicates that the proposed project is forecast to result in significant traffic impacts at five of the seven intersections. Transportation mitigation measures have been considered and if approved and implemented would reduce the project’s contribution to the significant transportation impacts at the subject study intersections to less than significant levels. If for any reason the City decides against the installation of the traffic signal at the Via Rivera/Hawthorne Boulevard intersection, the project impact would remain significant and unavoidable.
- **Roadway Street Segment Analysis** – It is concluded that one of the roadway segments will not meet the City’s minimum level of service standard. A measure is recommended consistent with the City’s General Plan to reduce the potentially significant impact to less than significant levels. However, the improvement would require elimination of the existing bicycle lanes along Palos Verdes Drive South, which may not be feasible. Therefore, a significant and unavoidable traffic impact would remain at this location.

- **Construction Traffic Analysis** – It can be concluded that based on the comparative review of project's forecast peak construction-related traffic generation with the forecast operational traffic generation significant traffic impacts could occur during the peak construction phase. Since construction activities are temporary in nature, it is conservatively concluded that construction traffic impacts would be significant and unavoidable.
- **Emergency Access and Evacuation Review** – It is estimated that the clearing times to evacuate the vehicles traveling south on Narcissa Drive and Peppertree Drive are found to be within an acceptable range for evacuation purposes.
- **CMP Traffic Assessment** – The results of the Los Angeles CMP traffic assessment indicate that the proposed project will not adversely affect any CMP arterial monitoring intersections or freeway monitoring locations. Therefore, no improvements/mitigation measures at CMP monitoring locations are required.

APPENDIX A

TRAFFIC COUNT DATA

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

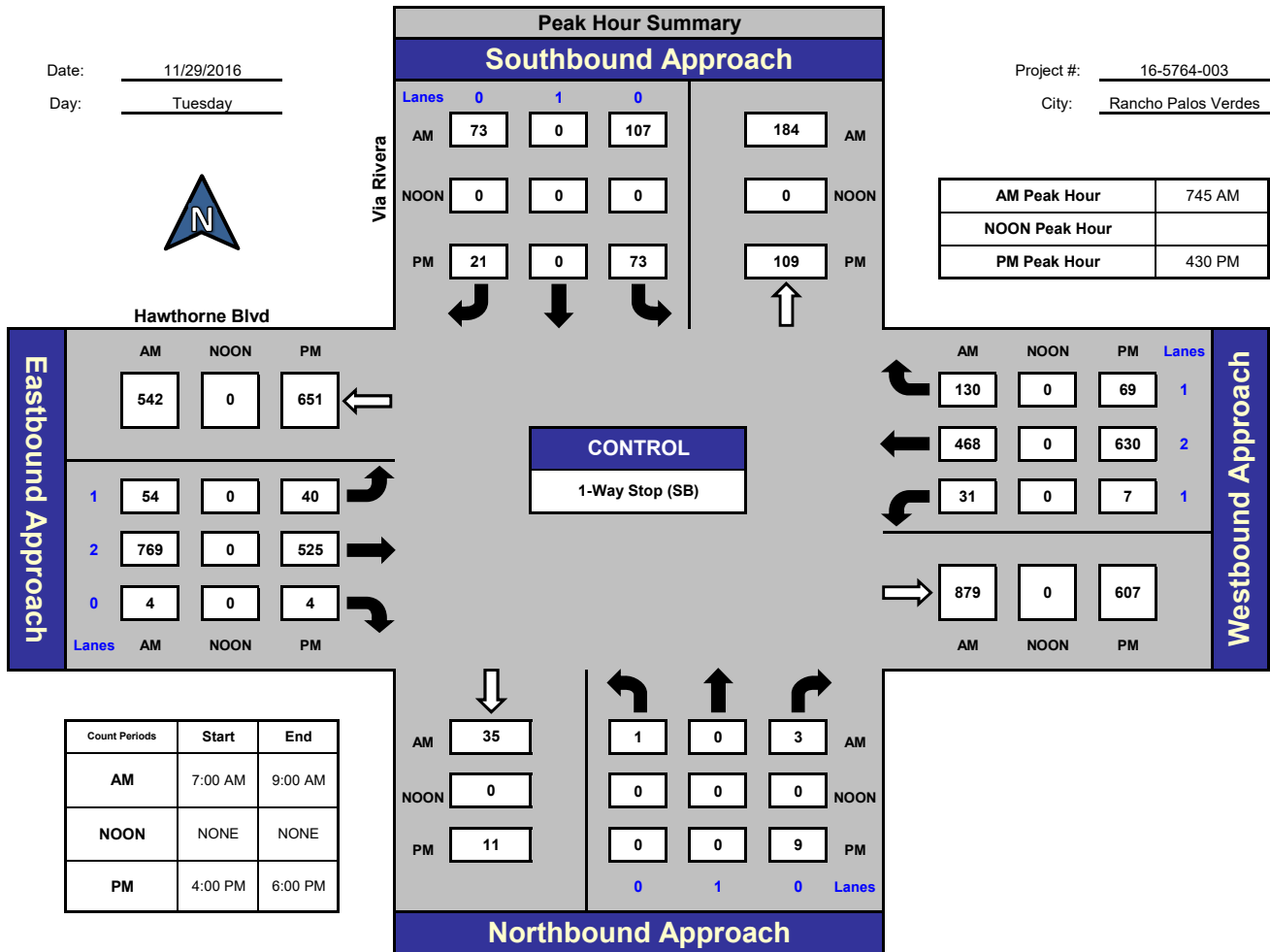
Via Rivera and Hawthorne Blvd, Rancho Palos Verdes

Date: 11/29/2016

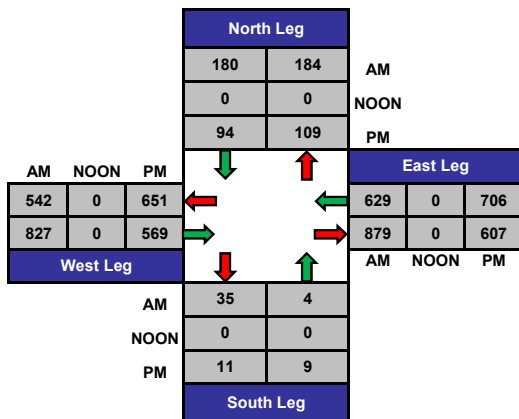
Day: Tuesday

Project #: 16-5764-003

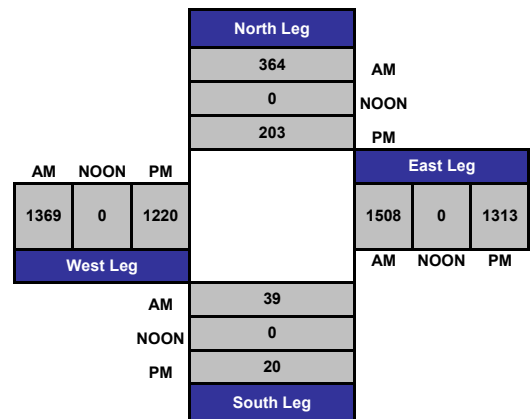
City: Rancho Palos Verdes



Total Ins & Outs



Total Volume Per Leg



CITY TRAFFIC COUNTERS
WWW.CTCOUNTERS.COM

File Name : Hawthorne_ViaRivera
 Site Code : 00000000
 Start Date : 11/14/2018
 Page No : 1

Groups Printed- Vehicles

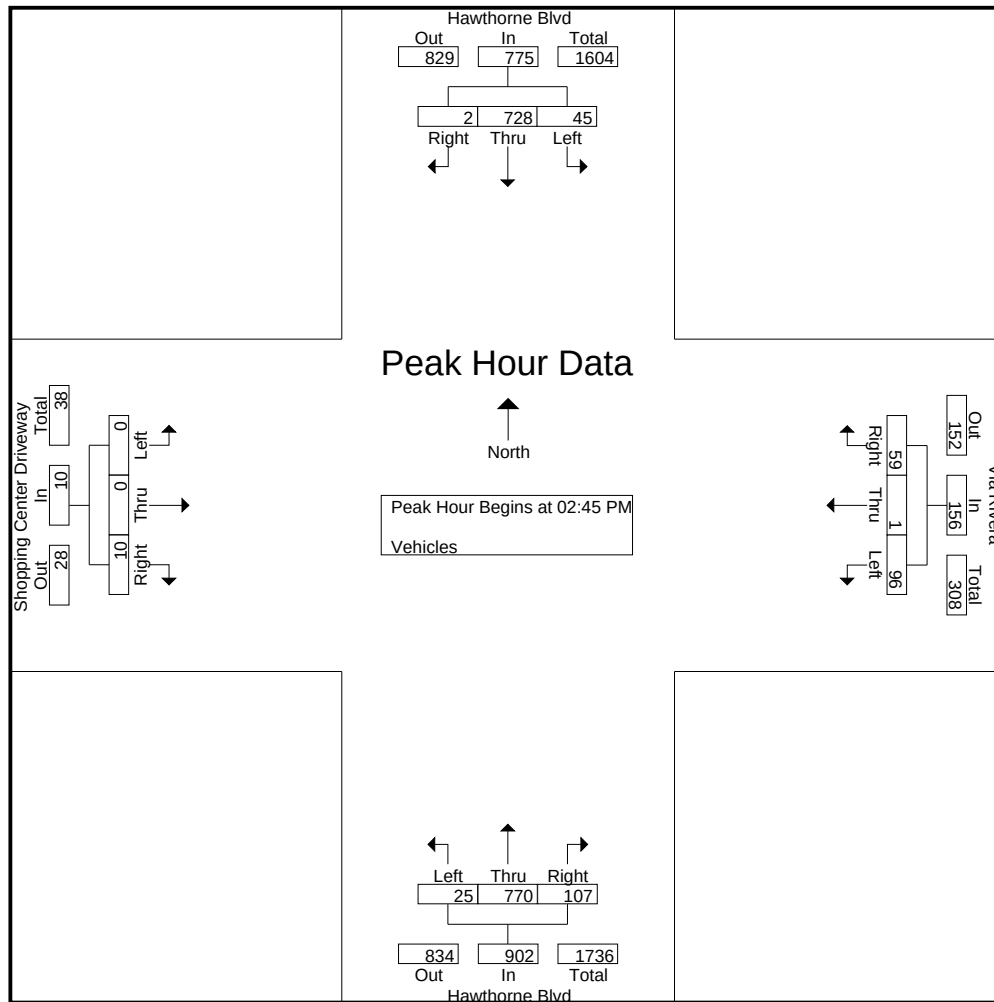
	Hawthorne Blvd Southbound			Via Rivera Westbound			Hawthorne Blvd Northbound			Shopping Center Driveway Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
02:00 PM	7	100	1	11	1	7	2	120	19	0	0	3	271
02:15 PM	6	129	2	18	0	9	3	128	24	0	0	4	323
02:30 PM	17	127	0	7	0	7	2	145	33	0	0	0	338
02:45 PM	8	165	1	14	0	15	6	182	42	0	0	3	436
Total	38	521	4	50	1	38	13	575	118	0	0	10	1368
03:00 PM	18	207	0	32	1	19	5	202	29	0	0	1	514
03:15 PM	7	204	0	29	0	14	9	186	20	0	0	1	470
03:30 PM	12	152	1	21	0	11	5	200	16	0	0	5	423
03:45 PM	10	116	2	9	0	5	10	184	16	0	0	1	353
Total	47	679	3	91	1	49	29	772	81	0	0	8	1760
Grand Total	85	1200	7	141	2	87	42	1347	199	0	0	18	3128
Apprch %	6.6	92.9	0.5	61.3	0.9	37.8	2.6	84.8	12.5	0	0	100	
Total %	2.7	38.4	0.2	4.5	0.1	2.8	1.3	43.1	6.4	0	0	0.6	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Hawthorne_ViaRivera
 Site Code : 00000000
 Start Date : 11/14/2018
 Page No : 2

	Hawthorne Blvd Southbound				Via Rivera Westbound				Hawthorne Blvd Northbound				Shopping Center Driveway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:45 PM																	
02:45 PM	8	165	1	174	14	0	15	29	6	182	42	230	0	0	3	3	436
03:00 PM	18	207	0	225	32	1	19	52	5	202	29	236	0	0	1	1	514
03:15 PM	7	204	0	211	29	0	14	43	9	186	20	215	0	0	1	1	470
03:30 PM	12	152	1	165	21	0	11	32	5	200	16	221	0	0	5	5	423
Total Volume	45	728	2	775	96	1	59	156	25	770	107	902	0	0	10	10	1843
% App. Total	5.8	93.9	0.3		61.5	0.6	37.8		2.8	85.4	11.9		0	0	100		
PHF	.625	.879	.500	.861	.750	.250	.776	.750	.694	.953	.637	.956	.000	.000	.500	.500	.896



CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Tramonto-Seahill_PalosVerdesDrSouth

Site Code : 00000000

Start Date : 11/14/2018

Page No : 1

Groups Printed- Vehicles

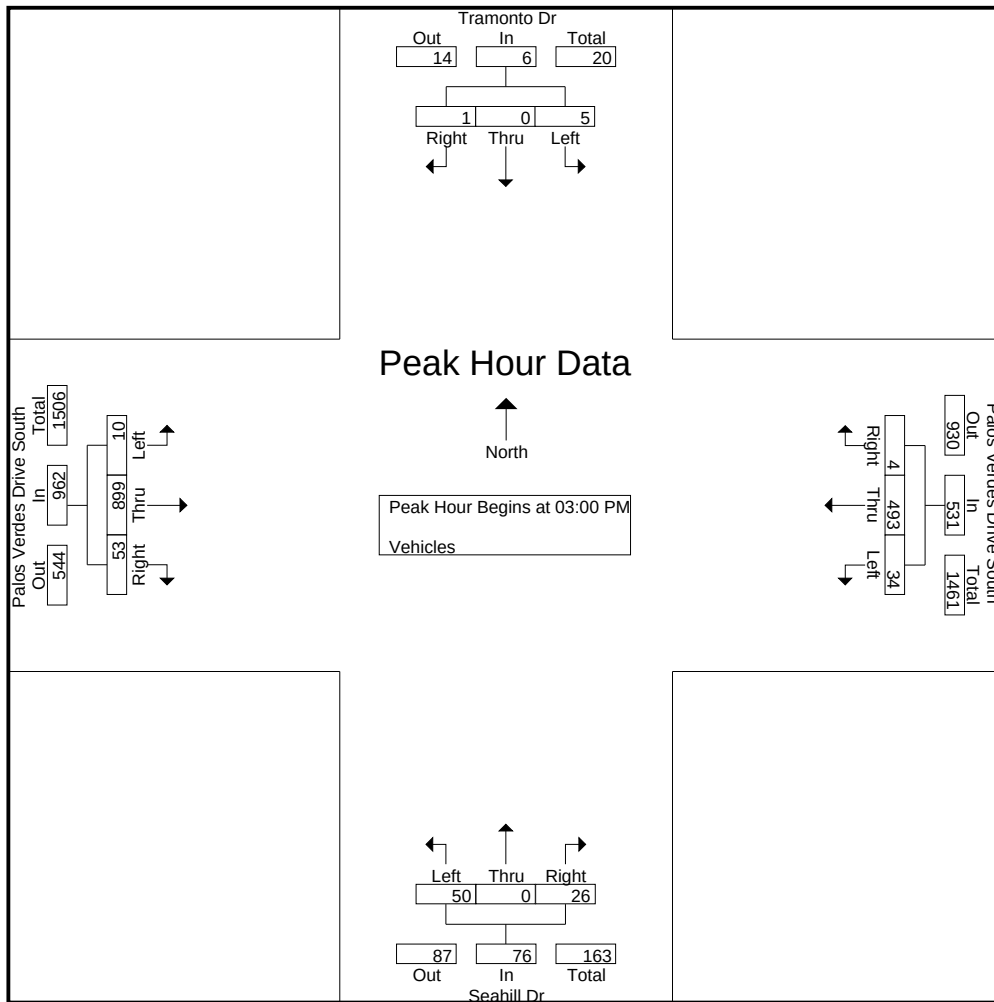
	Tramonto Dr Southbound			Palos Verdes Drive South Westbound			Seahill Dr Northbound			Palos Verdes Drive South Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
02:00 PM	0	0	0	6	97	0	16	1	8	2	118	8	256
02:15 PM	0	0	0	4	99	1	6	0	4	2	131	7	254
02:30 PM	6	0	1	6	143	0	9	0	2	1	145	7	320
02:45 PM	0	0	0	3	124	1	11	0	4	4	186	12	345
Total	6	0	1	19	463	2	42	1	18	9	580	34	1175
03:00 PM	1	0	0	7	126	1	16	0	5	4	228	13	401
03:15 PM	0	0	0	9	114	3	12	0	8	4	246	17	413
03:30 PM	2	0	0	9	122	0	10	0	7	2	220	10	382
03:45 PM	2	0	1	9	131	0	12	0	6	0	205	13	379
Total	5	0	1	34	493	4	50	0	26	10	899	53	1575
Grand Total	11	0	2	53	956	6	92	1	44	19	1479	87	2750
Apprch %	84.6	0	15.4	5.2	94.2	0.6	67.2	0.7	32.1	1.2	93.3	5.5	
Total %	0.4	0	0.1	1.9	34.8	0.2	3.3	0	1.6	0.7	53.8	3.2	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Tramonto-Seahill_PalosVerdesDrSouth
 Site Code : 00000000
 Start Date : 11/14/2018
 Page No : 2

	Tramonto Dr Southbound				Palos Verdes Drive South Westbound				Seahill Dr Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	1	0	0	1	7	126	1	134	16	0	5	21	4	228	13	245	401
03:15 PM	0	0	0	0	9	114	3	126	12	0	8	20	4	246	17	267	413
03:30 PM	2	0	0	2	9	122	0	131	10	0	7	17	2	220	10	232	382
03:45 PM	2	0	1	3	9	131	0	140	12	0	6	18	0	205	13	218	379
Total Volume	5	0	1	6	34	493	4	531	50	0	26	76	10	899	53	962	1575
% App. Total	83.3	0	16.7		6.4	92.8	0.8		65.8	0	34.2		1	93.5	5.5		
PHF	.625	.000	.250	.500	.944	.941	.333	.948	.781	.000	.813	.905	.625	.914	.779	.901	.953



City of Rancho Palos Verdes
N/S: Barkentine Road
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 01_RPV_Barkentine_Palos Verdes Dr S AM
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

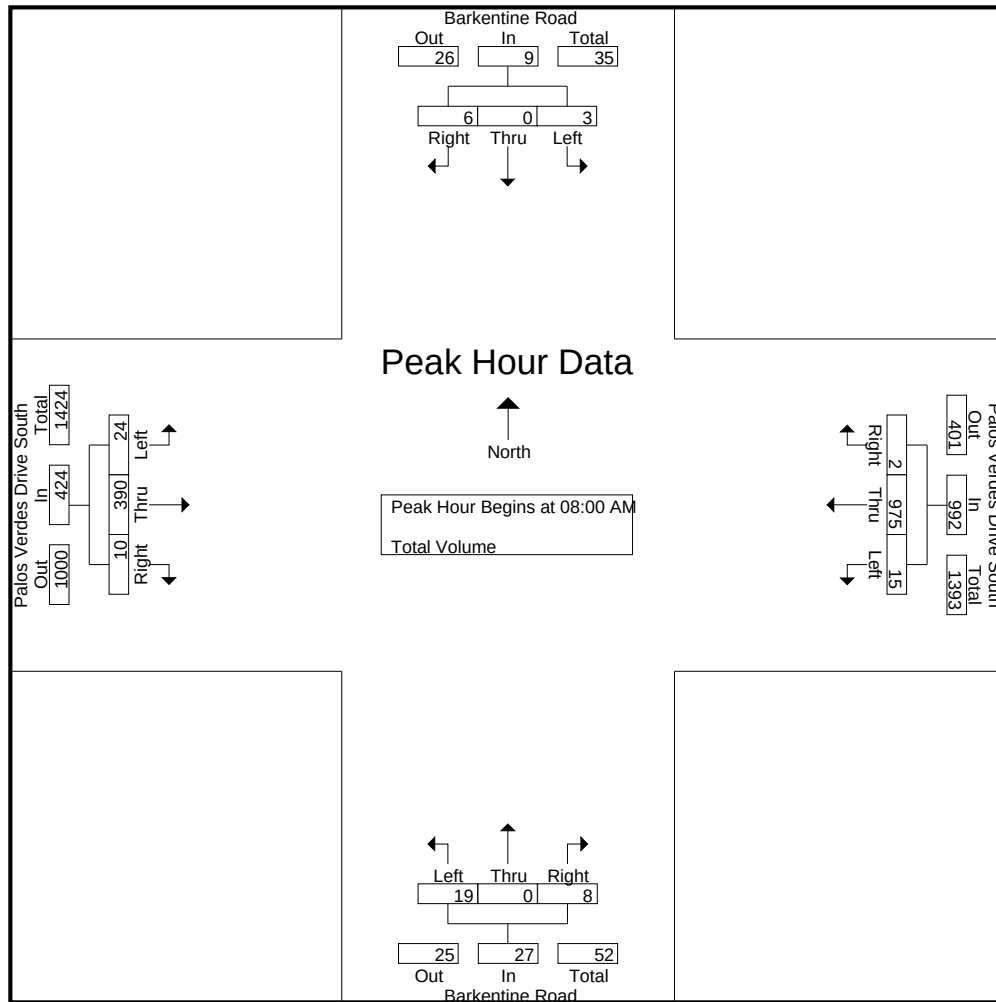
Groups Printed- Total Volume

	Barkentine Road Southbound				Palos Verdes Drive South Westbound				Barkentine Road Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	0	1	2	2	113	1	116	3	0	2	5	2	53	1	56	179
07:15 AM	0	0	3	3	2	181	0	183	8	0	1	9	0	56	1	57	252
07:30 AM	2	0	6	8	1	185	1	187	3	0	2	5	1	73	2	76	276
07:45 AM	0	1	1	2	0	238	1	239	8	0	1	9	0	90	2	92	342
Total	3	1	11	15	5	717	3	725	22	0	6	28	3	272	6	281	1049
08:00 AM	0	0	1	1	2	244	0	246	5	0	2	7	1	75	1	77	331
08:15 AM	0	0	2	2	4	271	0	275	5	0	1	6	5	78	0	83	366
08:30 AM	0	0	2	2	5	238	1	244	5	0	4	9	12	122	5	139	394
08:45 AM	3	0	1	4	4	222	1	227	4	0	1	5	6	115	4	125	361
Total	3	0	6	9	15	975	2	992	19	0	8	27	24	390	10	424	1452
Grand Total	6	1	17	24	20	1692	5	1717	41	0	14	55	27	662	16	705	2501
Apprch %	25	4.2	70.8		1.2	98.5	0.3		74.5	0	25.5		3.8	93.9	2.3		
Total %	0.2	0	0.7	1	0.8	67.7	0.2	68.7	1.6	0	0.6	2.2	1.1	26.5	0.6	28.2	

	Barkentine Road Southbound				Palos Verdes Drive South Westbound				Barkentine Road Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	1	1	2	244	0	246	5	0	2	7	1	75	1	77	331
08:15 AM	0	0	2	2	4	271	0	275	5	0	1	6	5	78	0	83	366
08:30 AM	0	0	2	2	5	238	1	244	5	0	4	9	12	122	5	139	394
08:45 AM	3	0	1	4	4	222	1	227	4	0	1	5	6	115	4	125	361
Total Volume	3	0	6	9	15	975	2	992	19	0	8	27	24	390	10	424	1452
% App. Total	33.3	0	66.7		1.5	98.3	0.2		70.4	0	29.6		5.7	92	2.4		
PHF	.250	.000	.750	.563	.750	.899	.500	.902	.950	.000	.500	.750	.500	.799	.500	.763	.921

City of Rancho Palos Verdes
N/S: Barkentine Road
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 01_RPV_Barkentine_Palos Verdes Dr S AM
Site Code : 05718832
Start Date : 11/14/2018
Page No : 2



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

	07:00 AM				07:45 AM				07:45 AM				08:00 AM			
+0 mins.	1	0	1	2	0	238	1	239	8	0	1	9	1	75	1	77
+15 mins.	0	0	3	3	2	244	0	246	5	0	2	7	5	78	0	83
+30 mins.	2	0	6	8	4	271	0	275	5	0	1	6	12	122	5	139
+45 mins.	0	1	1	2	5	238	1	244	5	0	4	9	6	115	4	125
Total Volume	3	1	11	15	11	991	2	1004	23	0	8	31	24	390	10	424
% App. Total	20	6.7	73.3		1.1	98.7	0.2		74.2	0	25.8		5.7	92	2.4	
PHF	.375	.250	.458	.469	.550	.914	.500	.913	.719	.000	.500	.861	.500	.799	.500	.763

City of Rancho Palos Verdes
N/S: Barkentine Road
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 01_RPV_Barkentine_Palos Verdes Dr S PM 1
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

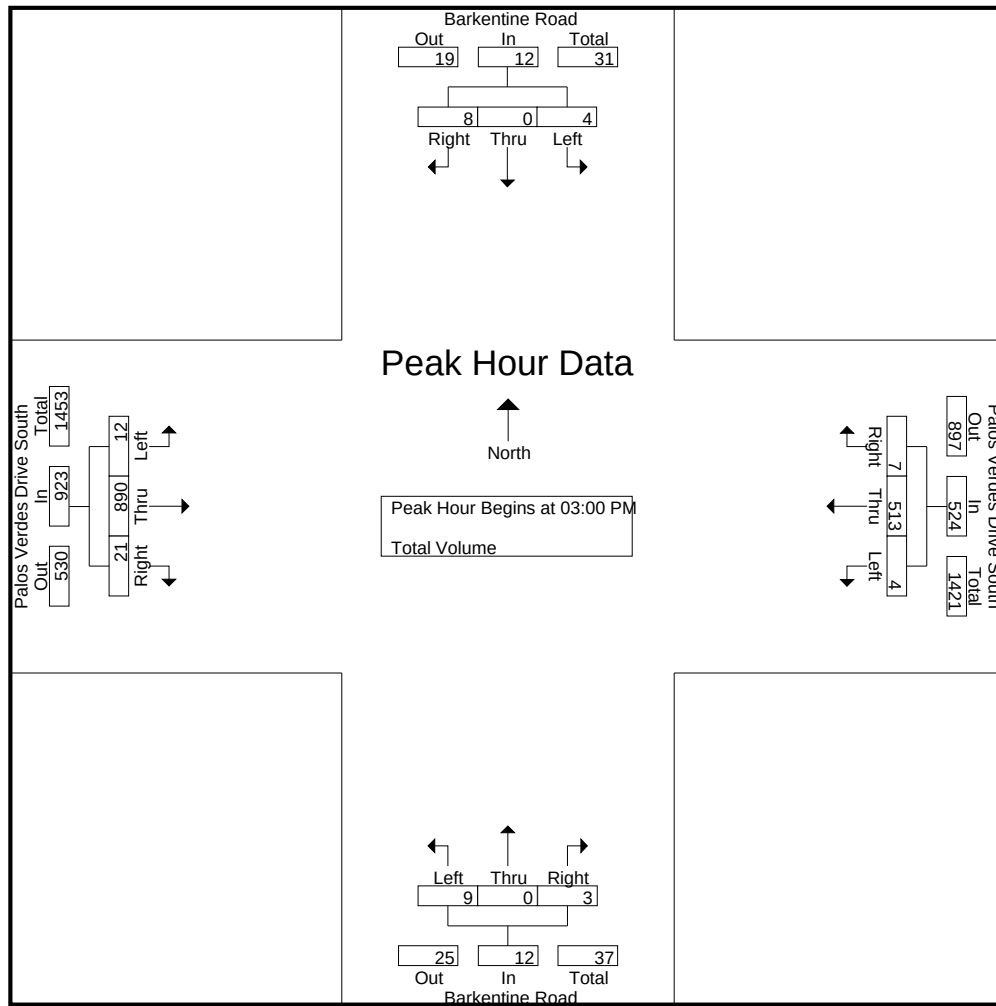
Groups Printed- Total Volume

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Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	0	0	3	3	1	93	3	97	3	0	1	4	5	124	0	129	233
02:15 PM	0	0	1	1	1	100	2	103	2	0	0	2	3	137	3	143	249
02:30 PM	0	0	1	1	0	140	0	140	4	0	3	7	6	146	0	152	300
02:45 PM	2	0	6	8	1	114	0	115	4	0	0	4	5	192	2	199	326
Total	2	0	11	13	3	447	5	455	13	0	4	17	19	599	5	623	1108
03:00 PM	1	0	2	3	0	130	3	133	3	0	1	4	2	223	3	228	368
03:15 PM	0	0	2	2	0	120	2	122	3	0	0	3	2	245	9	256	383
03:30 PM	1	0	3	4	2	133	2	137	1	0	1	2	4	221	6	231	374
03:45 PM	2	0	1	3	2	130	0	132	2	0	1	3	4	201	3	208	346
Total	4	0	8	12	4	513	7	524	9	0	3	12	12	890	21	923	1471
Grand Total	6	0	19	25	7	960	12	979	22	0	7	29	31	1489	26	1546	2579
Apprch %	24	0	76		0.7	98.1	1.2		75.9	0	24.1		2	96.3	1.7		
Total %	0.2	0	0.7	1	0.3	37.2	0.5	38	0.9	0	0.3	1.1	1.2	57.7	1	59.9	

	Barkentine Road Southbound				Palos Verdes Drive South Westbound				Barkentine Road Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	1	0	2	3	0	130	3	133	3	0	1	4	2	223	3	228	368
03:15 PM	0	0	2	2	0	120	2	122	3	0	0	3	2	245	9	256	383
03:30 PM	1	0	3	4	2	133	2	137	1	0	1	2	4	221	6	231	374
03:45 PM	2	0	1	3	2	130	0	132	2	0	1	3	4	201	3	208	346
Total Volume	4	0	8	12	4	513	7	524	9	0	3	12	12	890	21	923	1471
% App. Total	33.3	0	66.7		0.8	97.9	1.3		75	0	25		1.3	96.4	2.3		
PHF	.500	.000	.667	.750	.500	.964	.583	.956	.750	.000	.750	.750	.750	.908	.583	.901	.960

City of Rancho Palos Verdes
N/S: Barkentine Road
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 01_RPV_Barkentine_Palos Verdes Dr S PM 1
Site Code : 05718832
Start Date : 11/14/2018
Page No : 2



Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	02:45 PM				03:00 PM				02:30 PM				03:00 PM			
+0 mins.	2	0	6	8	0	130	3	133	4	0	3	7	2	223	3	228
+15 mins.	1	0	2	3	0	120	2	122	4	0	0	4	2	245	9	256
+30 mins.	0	0	2	2	2	133	2	137	3	0	1	4	4	221	6	231
+45 mins.	1	0	3	4	2	130	0	132	3	0	0	3	4	201	3	208
Total Volume	4	0	13	17	4	513	7	524	14	0	4	18	12	890	21	923
% App. Total	23.5	0	76.5		0.8	97.9	1.3		77.8	0	22.2		1.3	96.4	2.3	
PHF	.500	.000	.542	.531	.500	.964	.583	.956	.875	.000	.333	.643	.750	.908	.583	.901

City of Rancho Palos Verdes
N/S: Barkentine Road
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 01_RPV_Barkentine_Palos Verdes Dr S PM 2
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

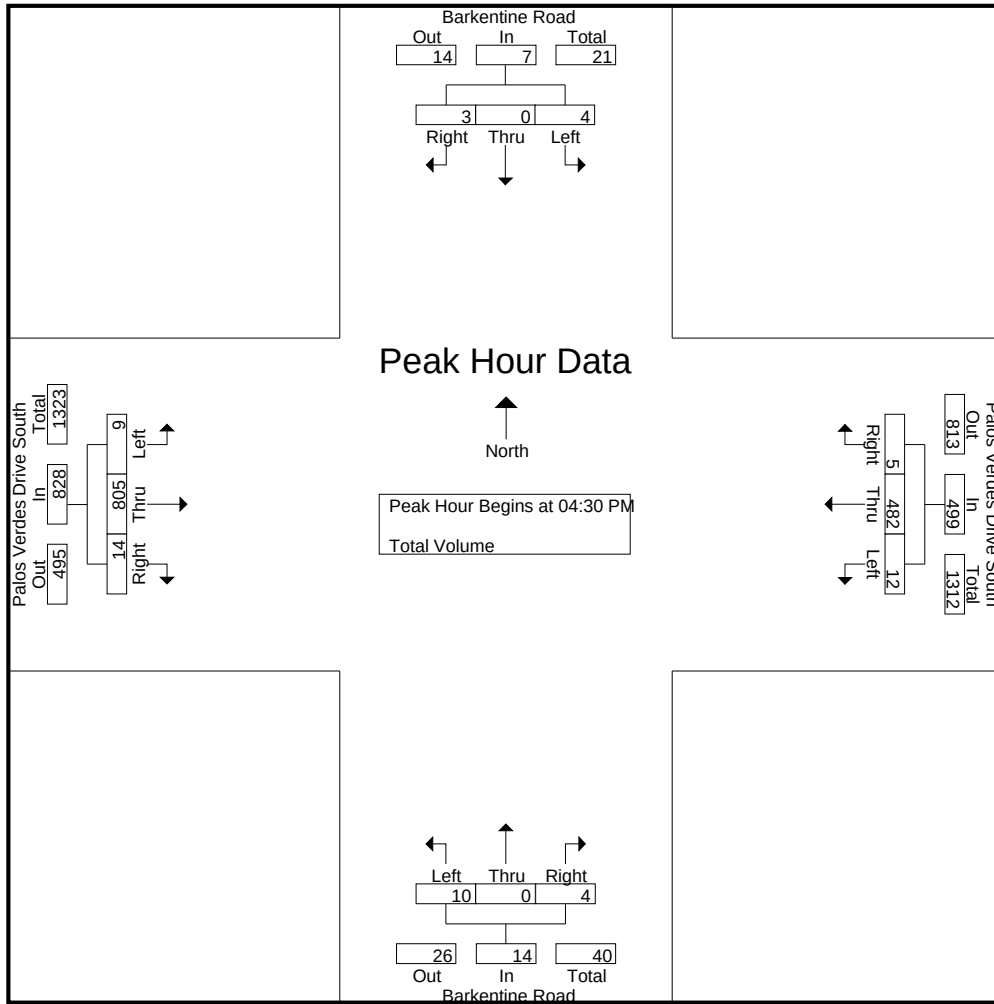
Groups Printed- Total Volume

	Barkentine Road Southbound				Palos Verdes Drive South Westbound				Barkentine Road Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	0	0	0	0	2	131	1	134	2	0	1	3	2	200	2	204	341
04:15 PM	1	0	3	4	1	121	0	122	1	0	0	1	4	182	4	190	317
04:30 PM	1	0	1	2	3	101	0	104	1	0	1	2	0	188	3	191	299
04:45 PM	0	0	0	0	3	130	3	136	3	0	0	3	1	207	2	210	349
Total	2	0	4	6	9	483	4	496	7	0	2	9	7	777	11	795	1306
05:00 PM	0	0	0	0	3	113	0	116	3	0	2	5	5	190	3	198	319
05:15 PM	3	0	2	5	3	138	2	143	3	0	1	4	3	220	6	229	381
05:30 PM	0	0	0	0	1	99	0	100	1	0	1	2	3	180	3	186	288
05:45 PM	3	0	2	5	0	81	0	81	1	0	5	6	2	156	2	160	252
Total	6	0	4	10	7	431	2	440	8	0	9	17	13	746	14	773	1240
Grand Total	8	0	8	16	16	914	6	936	15	0	11	26	20	1523	25	1568	2546
Apprch %	50	0	50		1.7	97.6	0.6		57.7	0	42.3		1.3	97.1	1.6		
Total %	0.3	0	0.3	0.6	0.6	35.9	0.2	36.8	0.6	0	0.4	1	0.8	59.8	1	61.6	

	Barkentine Road Southbound				Palos Verdes Drive South Westbound				Barkentine Road Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	0	1	2	3	101	0	104	1	0	1	2	0	188	3	191	299
04:45 PM	0	0	0	0	3	130	3	136	3	0	0	3	1	207	2	210	349
05:00 PM	0	0	0	0	3	113	0	116	3	0	2	5	5	190	3	198	319
05:15 PM	3	0	2	5	3	138	2	143	3	0	1	4	3	220	6	229	381
Total Volume	4	0	3	7	12	482	5	499	10	0	4	14	9	805	14	828	1348
% App. Total	57.1	0	42.9		2.4	96.6	1		71.4	0	28.6		1.1	97.2	1.7		
PHF	.333	.000	.375	.350	1.00	.873	.417	.872	.833	.000	.500	.700	.450	.915	.583	.904	.885

City of Rancho Palos Verdes
N/S: Barkentine Road
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 01_RPV_Barkentine_Palos Verdes Dr S PM 2
Site Code : 05718832
Start Date : 11/14/2018
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Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:30 PM				05:00 PM				04:30 PM			
+0 mins.	0	0	0	0	3	101	0	104	3	0	2	5	0	188	3	191
+15 mins.	3	0	2	5	3	130	3	136	3	0	1	4	1	207	2	210
+30 mins.	0	0	0	0	3	113	0	116	1	0	1	2	5	190	3	198
+45 mins.	3	0	2	5	3	138	2	143	1	0	5	6	3	220	6	229
Total Volume	6	0	4	10	12	482	5	499	8	0	9	17	9	805	14	828
% App. Total	60	0	40		2.4	96.6	1		47.1	0	52.9		1.1	97.2	1.7	
PHF	.500	.000	.500	.500	1.000	.873	.417	.872	.667	.000	.450	.708	.450	.915	.583	.904

City of Rancho Palos Verdes
N/S: Narcissa Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 02_RPV_Narcissa_Palos Verdes Dr S AM
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

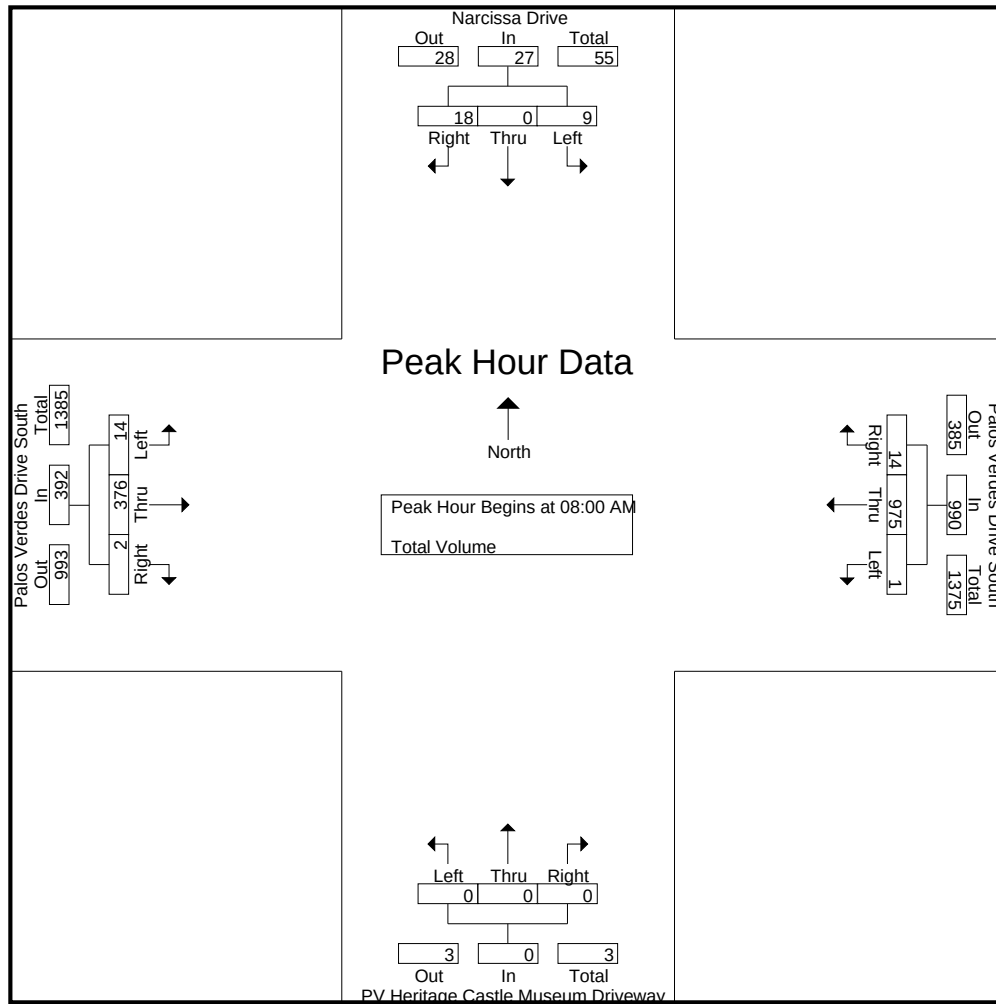
Groups Printed- Total Volume

	Narcissa Drive Southbound				Palos Verdes Drive South Westbound				PV Heritage Castle Museum Driveway Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	1	0	4	5	0	115	2	117	0	0	0	0	1	57	2	60	182
07:15 AM	4	0	5	9	2	170	5	177	0	0	0	0	0	56	0	56	242
07:30 AM	3	0	3	6	0	196	6	202	0	0	0	0	1	73	0	74	282
07:45 AM	4	0	5	9	0	237	4	241	2	0	0	2	4	88	0	92	344
Total	12	0	17	29	2	718	17	737	2	0	0	2	6	274	2	282	1050
08:00 AM	3	0	6	9	0	243	5	248	0	0	0	0	5	68	0	73	330
08:15 AM	3	0	3	6	0	264	5	269	0	0	0	0	2	79	0	81	356
08:30 AM	2	0	5	7	0	251	1	252	0	0	0	0	6	104	1	111	370
08:45 AM	1	0	4	5	1	217	3	221	0	0	0	0	1	125	1	127	353
Total	9	0	18	27	1	975	14	990	0	0	0	0	14	376	2	392	1409
Grand Total	21	0	35	56	3	1693	31	1727	2	0	0	2	20	650	4	674	2459
Apprch %	37.5	0	62.5		0.2	98	1.8		100	0	0		3	96.4	0.6		
Total %	0.9	0	1.4	2.3	0.1	68.8	1.3	70.2	0.1	0	0	0.1	0.8	26.4	0.2	27.4	

	Narcissa Drive Southbound				Palos Verdes Drive South Westbound				PV Heritage Castle Museum Driveway Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	3	0	6	9	0	243	5	248	0	0	0	0	5	68	0	73	330
08:15 AM	3	0	3	6	0	264	5	269	0	0	0	0	2	79	0	81	356
08:30 AM	2	0	5	7	0	251	1	252	0	0	0	0	6	104	1	111	370
08:45 AM	1	0	4	5	1	217	3	221	0	0	0	0	1	125	1	127	353
Total Volume	9	0	18	27	1	975	14	990	0	0	0	0	14	376	2	392	1409
% App. Total	33.3	0	66.7		0.1	98.5	1.4		0	0	0		3.6	95.9	0.5		
PHF	.750	.000	.750	.750	.250	.923	.700	.920	.000	.000	.000	.000	.583	.752	.500	.772	.952

City of Rancho Palos Verdes
N/S: Narcissa Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 02_RPV_Narcissa_Palos Verdes Dr S AM
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:45 AM				07:00 AM				08:00 AM			
+0 mins.	4	0	5	9	0	237	4	241	0	0	0	0	5	68	0	73
+15 mins.	3	0	3	6	0	243	5	248	0	0	0	0	2	79	0	81
+30 mins.	4	0	5	9	0	264	5	269	0	0	0	0	6	104	1	111
+45 mins.	3	0	6	9	0	251	1	252	2	0	0	2	1	125	1	127
Total Volume	14	0	19	33	0	995	15	1010	2	0	0	2	14	376	2	392
% App. Total	42.4	0	57.6		0	98.5	1.5		100	0	0		3.6	95.9	0.5	
PHF	.875	.000	.792	.917	.000	.942	.750	.939	.250	.000	.000	.250	.583	.752	.500	.772

City of Rancho Palos Verdes
N/S: Narcissa Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 02_RPV_Narcissa_Palos Verdes Dr S PM 1
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

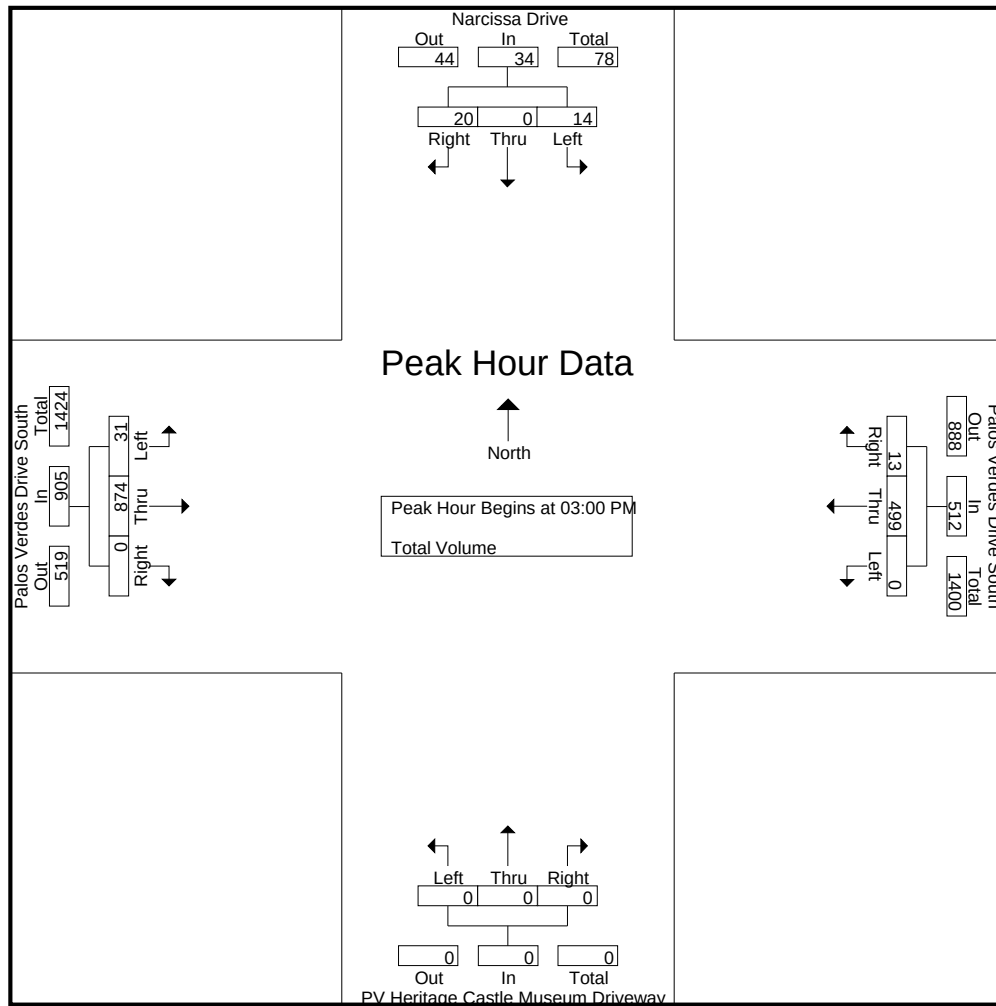
Groups Printed- Total Volume

	Narcissa Drive Southbound				Palos Verdes Drive South Westbound				PV Heritage Castle Museum Driveway Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	2	0	5	7	1	84	3	88	0	0	0	0	7	118	0	125	220
02:15 PM	4	0	5	9	0	105	1	106	0	0	0	0	6	135	0	141	256
02:30 PM	4	0	8	12	0	120	1	121	1	0	1	2	13	136	0	149	284
02:45 PM	3	0	4	7	0	114	0	114	0	0	0	0	2	188	0	190	311
Total	13	0	22	35	1	423	5	429	1	0	1	2	28	577	0	605	1071
03:00 PM	2	0	10	12	0	129	4	133	0	0	0	0	7	220	0	227	372
03:15 PM	5	0	3	8	0	115	2	117	0	0	0	0	11	237	0	248	373
03:30 PM	4	0	3	7	0	121	4	125	0	0	0	0	8	207	0	215	347
03:45 PM	3	0	4	7	0	134	3	137	0	0	0	0	5	210	0	215	359
Total	14	0	20	34	0	499	13	512	0	0	0	0	31	874	0	905	1451
Grand Total	27	0	42	69	1	922	18	941	1	0	1	2	59	1451	0	1510	2522
Apprch %	39.1	0	60.9		0.1	98	1.9		50	0	50		3.9	96.1	0		
Total %	1.1	0	1.7	2.7	0	36.6	0.7	37.3	0	0	0	0.1	2.3	57.5	0	59.9	

	Narcissa Drive Southbound				Palos Verdes Drive South Westbound				PV Heritage Castle Museum Driveway Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	2	0	10	12	0	129	4	133	0	0	0	0	7	220	0	227	372
03:15 PM	5	0	3	8	0	115	2	117	0	0	0	0	11	237	0	248	373
03:30 PM	4	0	3	7	0	121	4	125	0	0	0	0	8	207	0	215	347
03:45 PM	3	0	4	7	0	134	3	137	0	0	0	0	5	210	0	215	359
Total Volume	14	0	20	34	0	499	13	512	0	0	0	0	31	874	0	905	1451
% App. Total	41.2	0	58.8		0	97.5	2.5		0	0	0		3.4	96.6	0		
PHF	.700	.000	.500	.708	.000	.931	.813	.934	.000	.000	.000	.000	.705	.922	.000	.912	.973

City of Rancho Palos Verdes
N/S: Narcissa Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 02_RPV_Narcissa_Palos Verdes Dr S PM 1
Site Code : 05718832
Start Date : 11/14/2018
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Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:15 PM				03:00 PM				02:00 PM				03:00 PM			
+0 mins.	4	0	5	9	0	129	4	133	0	0	0	0	7	220	0	227
+15 mins.	4	0	8	12	0	115	2	117	0	0	0	0	11	237	0	248
+30 mins.	3	0	4	7	0	121	4	125	1	0	1	2	8	207	0	215
+45 mins.	2	0	10	12	0	134	3	137	0	0	0	0	5	210	0	215
Total Volume	13	0	27	40	0	499	13	512	1	0	1	2	31	874	0	905
% App. Total	32.5	0	67.5		0	97.5	2.5		50	0	50		3.4	96.6	0	
PHF	.813	.000	.675	.833	.000	.931	.813	.934	.250	.000	.250	.250	.705	.922	.000	.912

City of Rancho Palos Verdes
N/S: Narcissa Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 02_RPV_Narcissa_Palos Verdes Dr S PM 2
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

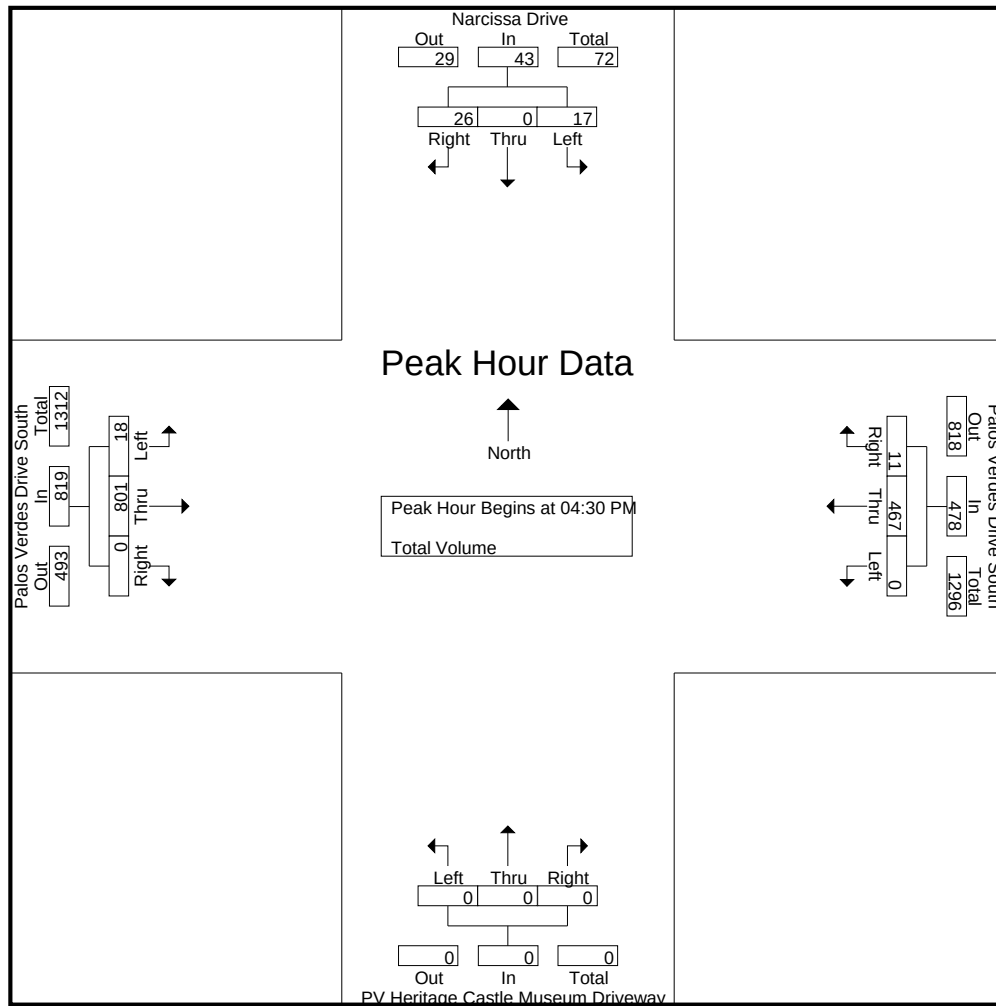
Groups Printed- Total Volume

	Narcissa Drive Southbound				Palos Verdes Drive South Westbound				PV Heritage Castle Museum Driveway Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	3	0	6	9	1	123	2	126	0	0	0	0	7	192	0	199	334
04:15 PM	5	0	5	10	0	119	2	121	0	0	0	0	10	184	0	194	325
04:30 PM	7	0	7	14	0	102	2	104	0	0	0	0	5	191	0	196	314
04:45 PM	4	0	4	8	0	118	2	120	0	0	0	0	5	195	0	200	328
Total	19	0	22	41	1	462	8	471	0	0	0	0	27	762	0	789	1301
05:00 PM	3	0	6	9	0	119	5	124	0	0	0	0	1	197	0	198	331
05:15 PM	3	0	9	12	0	128	2	130	0	0	0	0	7	218	0	225	367
05:30 PM	4	0	7	11	0	97	5	102	0	0	0	0	9	171	0	180	293
05:45 PM	0	0	3	3	0	65	1	66	0	0	0	0	5	174	0	179	248
Total	10	0	25	35	0	409	13	422	0	0	0	0	22	760	0	782	1239
Grand Total	29	0	47	76	1	871	21	893	0	0	0	0	49	1522	0	1571	2540
Apprch %	38.2	0	61.8		0.1	97.5	2.4		0	0	0		3.1	96.9	0		
Total %	1.1	0	1.9	3	0	34.3	0.8	35.2	0	0	0	0	1.9	59.9	0	61.9	

	Narcissa Drive Southbound				Palos Verdes Drive South Westbound				PV Heritage Castle Museum Driveway Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	7	0	7	14	0	102	2	104	0	0	0	0	5	191	0	196	314
04:45 PM	4	0	4	8	0	118	2	120	0	0	0	0	5	195	0	200	328
05:00 PM	3	0	6	9	0	119	5	124	0	0	0	0	1	197	0	198	331
05:15 PM	3	0	9	12	0	128	2	130	0	0	0	0	7	218	0	225	367
Total Volume	17	0	26	43	0	467	11	478	0	0	0	0	18	801	0	819	1340
% App. Total	39.5	0	60.5		0	97.7	2.3		0	0	0		2.2	97.8	0		
PHF	.607	.000	.722	.768	.000	.912	.550	.919	.000	.000	.000	.000	.643	.919	.000	.910	.913

City of Rancho Palos Verdes
N/S: Narcissa Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 02_RPV_Narcissa_Palos Verdes Dr S PM 2
Site Code : 05718832
Start Date : 11/14/2018
Page No : 2



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

	04:30 PM				04:30 PM				04:00 PM				04:30 PM			
+0 mins.	7	0	7	14	0	102	2	104	0	0	0	0	5	191	0	196
+15 mins.	4	0	4	8	0	118	2	120	0	0	0	0	5	195	0	200
+30 mins.	3	0	6	9	0	119	5	124	0	0	0	0	1	197	0	198
+45 mins.	3	0	9	12	0	128	2	130	0	0	0	0	7	218	0	225
Total Volume	17	0	26	43	0	467	11	478	0	0	0	0	18	801	0	819
% App. Total	39.5	0	60.5		0	97.7	2.3		0	0	0		2.2	97.8	0	
PHF	.607	.000	.722	.768	.000	.912	.550	.919	.000	.000	.000	.000	.643	.919	.000	.910

City of Rancho Palos Verdes
N/S: Peppertree Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 03_RPV_Peppertree_Palos Verdes Dr S AM
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

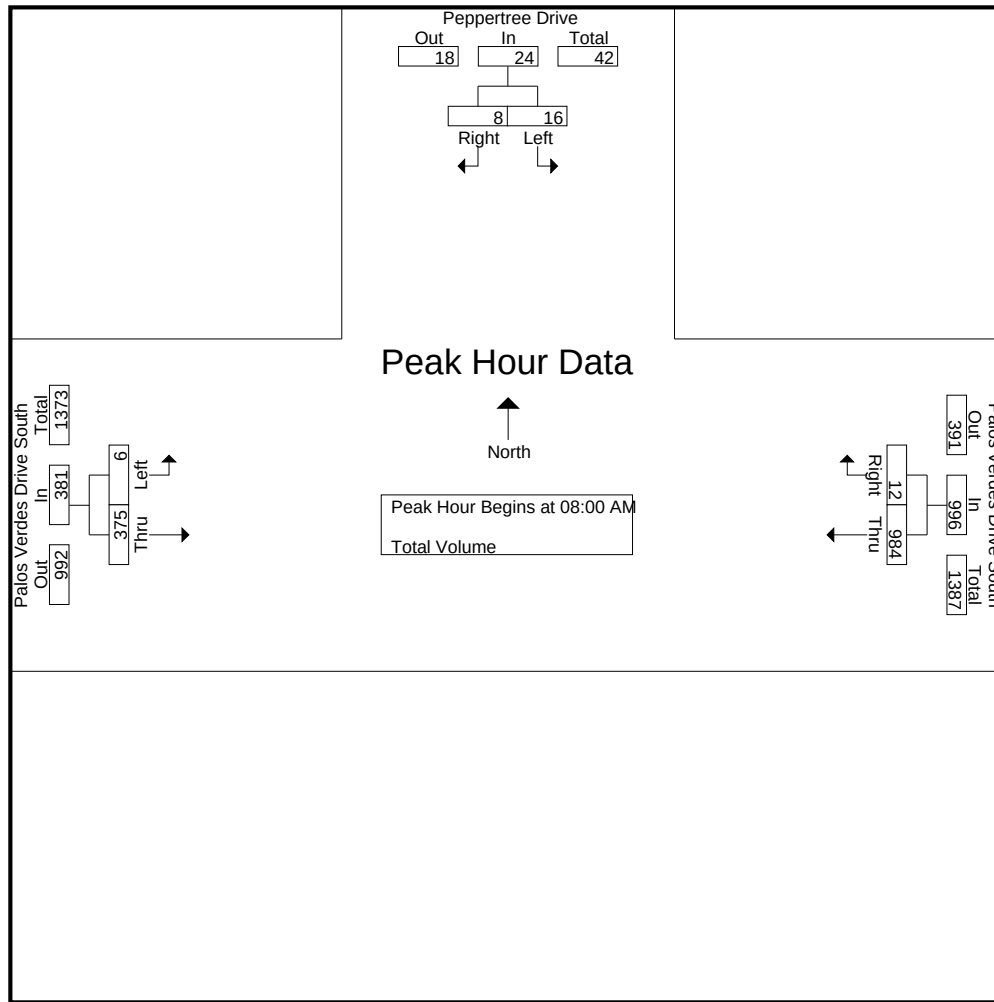
Groups Printed- Total Volume

	Peppertree Drive Southbound			Palos Verdes Drive South Westbound			Palos Verdes Drive South Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
07:00 AM	1	0	1	115	1	116	0	55	55	172
07:15 AM	2	0	2	181	3	184	0	62	62	248
07:30 AM	1	2	3	204	4	208	1	73	74	285
07:45 AM	1	0	1	237	7	244	1	89	90	335
Total	5	2	7	737	15	752	2	279	281	1040
08:00 AM	4	2	6	260	2	262	1	74	75	343
08:15 AM	4	2	6	257	3	260	2	77	79	345
08:30 AM	4	1	5	251	5	256	1	103	104	365
08:45 AM	4	3	7	216	2	218	2	121	123	348
Total	16	8	24	984	12	996	6	375	381	1401
Grand Total	21	10	31	1721	27	1748	8	654	662	2441
Apprch %	67.7	32.3		98.5	1.5		1.2	98.8		
Total %	0.9	0.4	1.3	70.5	1.1	71.6	0.3	26.8	27.1	

	Peppertree Drive Southbound			Palos Verdes Drive South Westbound			Palos Verdes Drive South Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	4	2	6	260	2	262	1	74	75	343
08:15 AM	4	2	6	257	3	260	2	77	79	345
08:30 AM	4	1	5	251	5	256	1	103	104	365
08:45 AM	4	3	7	216	2	218	2	121	123	348
Total Volume	16	8	24	984	12	996	6	375	381	1401
% App. Total	66.7	33.3		98.8	1.2		1.6	98.4		
PHF	1.00	.667	.857	.946	.600	.950	.750	.775	.774	.960

City of Rancho Palos Verdes
N/S: Peppertree Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 03_RPV_Peppertree_Palos Verdes Dr S AM
Site Code : 05718832
Start Date : 11/14/2018
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Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:45 AM			08:00 AM		
+0 mins.	4	2	6	237	7	244	1	74	75
+15 mins.	4	2	6	260	2	262	2	77	79
+30 mins.	4	1	5	257	3	260	1	103	104
+45 mins.	4	3	7	251	5	256	2	121	123
Total Volume	16	8	24	1005	17	1022	6	375	381
% App. Total	66.7	33.3		98.3	1.7		1.6	98.4	
PHF	1.000	.667	.857	.966	.607	.975	.750	.775	.774

City of Rancho Palos Verdes
N/S: Peppertree Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 03_RPV_Peppertree_Palos Verdes Dr S PM 1
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

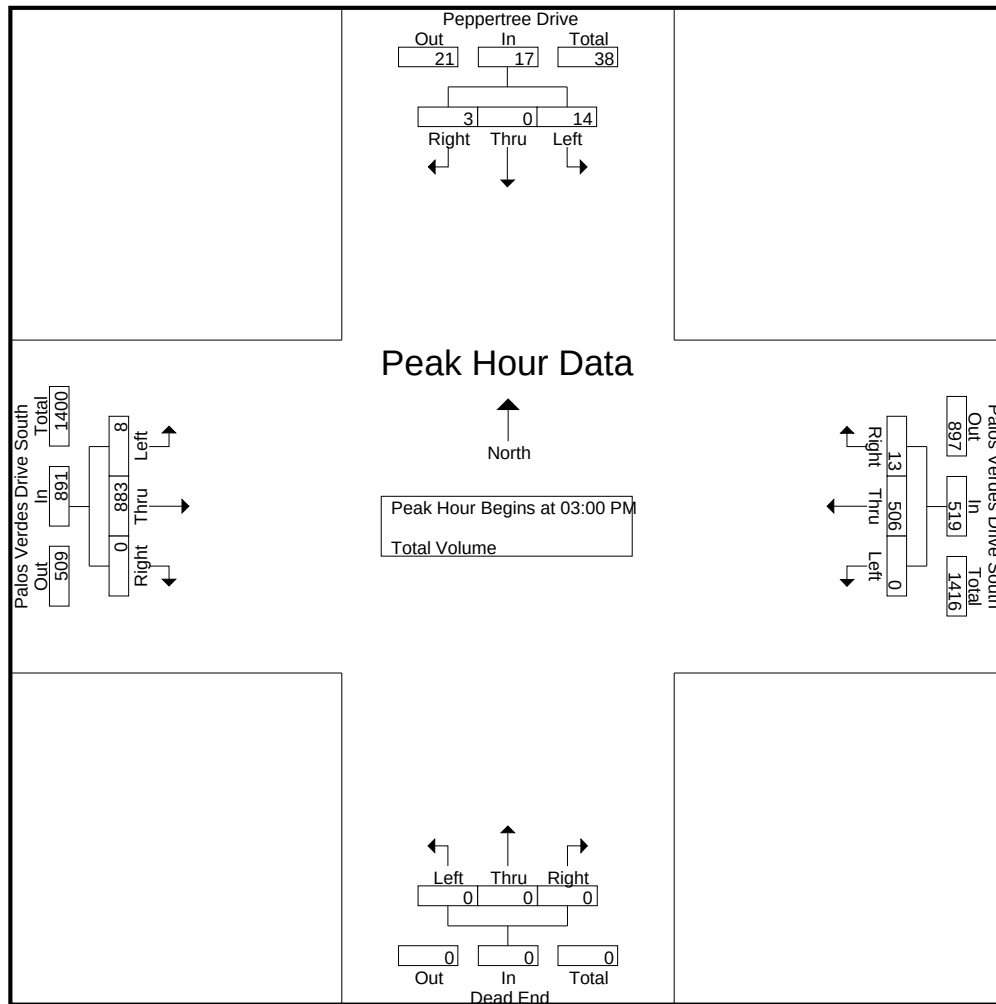
Groups Printed- Total Volume

	Peppertree Drive Southbound				Palos Verdes Drive South Westbound				Dead End Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:00 PM	2	0	2	4	0	88	3	91	0	0	0	0	1	118	0	119	214
02:15 PM	6	0	2	8	0	106	3	109	0	0	0	0	0	142	0	142	259
02:30 PM	1	0	0	1	0	123	3	126	0	0	0	0	1	135	0	136	263
02:45 PM	3	0	0	3	0	113	5	118	0	0	0	0	2	187	0	189	310
Total	12	0	4	16	0	430	14	444	0	0	0	0	4	582	0	586	1046
03:00 PM	8	0	1	9	0	128	4	132	0	0	0	0	1	230	0	231	372
03:15 PM	3	0	1	4	0	118	6	124	0	0	0	0	2	241	0	243	371
03:30 PM	2	0	1	3	0	129	2	131	0	0	0	0	0	211	0	211	345
03:45 PM	1	0	0	1	0	131	1	132	0	0	0	0	5	201	0	206	339
Total	14	0	3	17	0	506	13	519	0	0	0	0	8	883	0	891	1427
Grand Total	26	0	7	33	0	936	27	963	0	0	0	0	12	1465	0	1477	2473
Apprch %	78.8	0	21.2		0	97.2	2.8		0	0	0		0.8	99.2	0		
Total %	1.1	0	0.3	1.3	0	37.8	1.1	38.9	0	0	0	0	0.5	59.2	0	59.7	

	Peppertree Drive Southbound				Palos Verdes Drive South Westbound				Dead End Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	8	0	1	9	0	128	4	132	0	0	0	0	1	230	0	231	372
03:15 PM	3	0	1	4	0	118	6	124	0	0	0	0	2	241	0	243	371
03:30 PM	2	0	1	3	0	129	2	131	0	0	0	0	0	211	0	211	345
03:45 PM	1	0	0	1	0	131	1	132	0	0	0	0	5	201	0	206	339
Total Volume	14	0	3	17	0	506	13	519	0	0	0	0	8	883	0	891	1427
% App. Total	82.4	0	17.6		0	97.5	2.5		0	0	0		0.9	99.1	0		
PHF	.438	.000	.750	.472	.000	.966	.542	.983	.000	.000	.000	.000	.400	.916	.000	.917	.959

City of Rancho Palos Verdes
N/S: Peppertree Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 03_RPV_Peppertree_Palos Verdes Dr S PM 1
Site Code : 05718832
Start Date : 11/14/2018
Page No : 2



Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	02:15 PM				03:00 PM				02:00 PM				03:00 PM			
+0 mins.	6	0	2	8	0	128	4	132	0	0	0	0	1	230	0	231
+15 mins.	1	0	0	1	0	118	6	124	0	0	0	0	2	241	0	243
+30 mins.	3	0	0	3	0	129	2	131	0	0	0	0	0	211	0	211
+45 mins.	8	0	1	9	0	131	1	132	0	0	0	0	5	201	0	206
Total Volume	18	0	3	21	0	506	13	519	0	0	0	0	8	883	0	891
% App. Total	85.7	0	14.3		0	97.5	2.5		0	0	0		0.9	99.1	0	
PHF	.563	.000	.375	.583	.000	.966	.542	.983	.000	.000	.000	.000	.400	.916	.000	.917

City of Rancho Palos Verdes
N/S: Peppertree Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 03_RPV_Peppertree_Palos Verdes Dr S PM 2
Site Code : 05718832
Start Date : 11/14/2018
Page No : 1

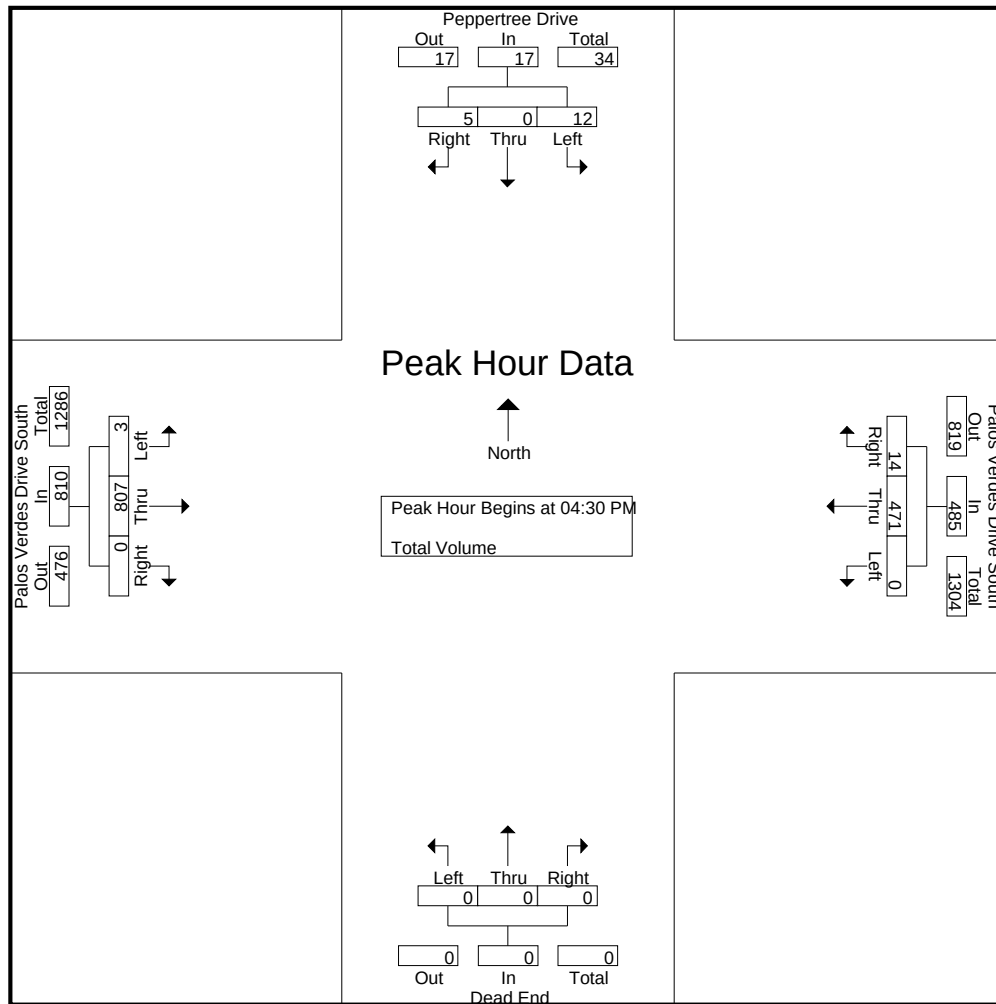
Groups Printed- Total Volume

	Peppertree Drive Southbound				Palos Verdes Drive South Westbound				Dead End Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	4	0	2	6	0	133	4	137	0	0	0	0	1	203	0	204	347
04:15 PM	2	0	1	3	0	119	2	121	0	0	0	0	2	188	0	190	314
04:30 PM	7	0	2	9	0	101	5	106	0	0	0	0	0	194	0	194	309
04:45 PM	1	0	1	2	0	119	5	124	0	0	0	0	1	199	0	200	326
Total	14	0	6	20	0	472	16	488	0	0	0	0	4	784	0	788	1296
05:00 PM	2	0	0	2	0	123	2	125	0	0	0	0	1	196	0	197	324
05:15 PM	2	0	2	4	0	128	2	130	0	0	0	0	1	218	0	219	353
05:30 PM	3	0	1	4	0	97	2	99	0	0	0	0	3	182	0	185	288
05:45 PM	1	0	1	2	0	71	2	73	0	0	0	0	2	171	0	173	248
Total	8	0	4	12	0	419	8	427	0	0	0	0	7	767	0	774	1213
Grand Total	22	0	10	32	0	891	24	915	0	0	0	0	11	1551	0	1562	2509
Apprch %	68.8	0	31.2		0	97.4	2.6		0	0	0		0.7	99.3	0		
Total %	0.9	0	0.4	1.3	0	35.5	1	36.5	0	0	0	0	0.4	61.8	0	62.3	

	Peppertree Drive Southbound				Palos Verdes Drive South Westbound				Dead End Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	7	0	2	9	0	101	5	106	0	0	0	0	0	194	0	194	309
04:45 PM	1	0	1	2	0	119	5	124	0	0	0	0	1	199	0	200	326
05:00 PM	2	0	0	2	0	123	2	125	0	0	0	0	1	196	0	197	324
05:15 PM	2	0	2	4	0	128	2	130	0	0	0	0	1	218	0	219	353
Total Volume	12	0	5	17	0	471	14	485	0	0	0	0	3	807	0	810	1312
% App. Total	70.6	0	29.4		0	97.1	2.9		0	0	0		0.4	99.6	0		
PHF	.429	.000	.625	.472	.000	.920	.700	.933	.000	.000	.000	.000	.750	.925	.000	.925	.929

City of Rancho Palos Verdes
N/S: Peppertree Drive
E/W: Palos Verdes Drive South
Weather: Clear

File Name : 03_RPV_Peppertree_Palos Verdes Dr S PM 2
Site Code : 05718832
Start Date : 11/14/2018
Page No : 2



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

	04:00 PM				04:00 PM				04:00 PM				04:30 PM			
+0 mins.	4	0	2	6	0	133	4	137	0	0	0	0	0	194	0	194
+15 mins.	2	0	1	3	0	119	2	121	0	0	0	0	1	199	0	200
+30 mins.	7	0	2	9	0	101	5	106	0	0	0	0	1	196	0	197
+45 mins.	1	0	1	2	0	119	5	124	0	0	0	0	1	218	0	219
Total Volume	14	0	6	20	0	472	16	488	0	0	0	0	3	807	0	810
% App. Total	70	0	30		0	96.7	3.3		0	0	0		0.4	99.6	0	
PHF	.500	.000	.750	.556	.000	.887	.800	.891	.000	.000	.000	.000	.750	.925	.000	.925

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

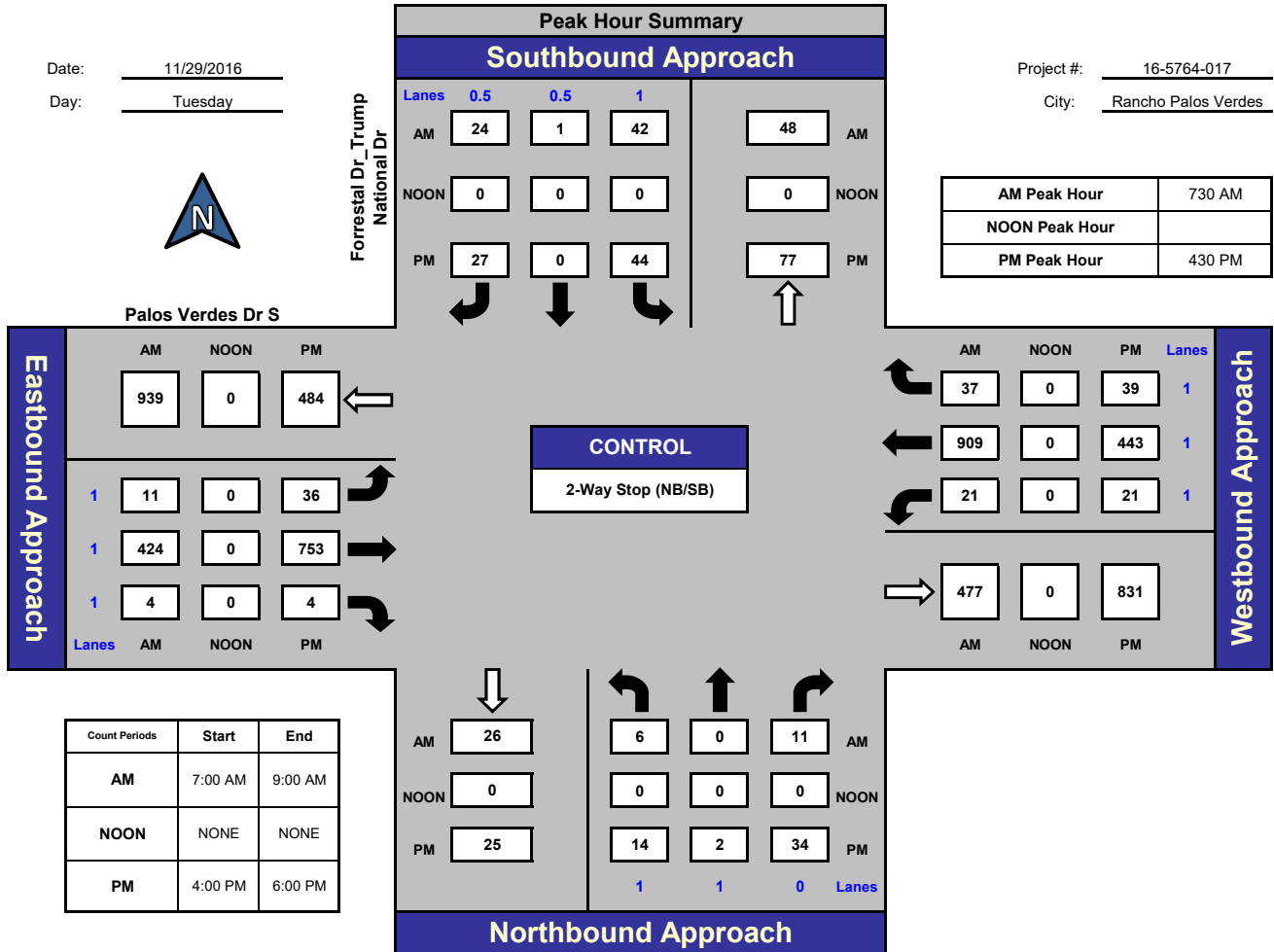
Forrestal Dr Trump National Dr and Palos Verdes Dr S , Rancho Palos Verdes

Date: 11/29/2016

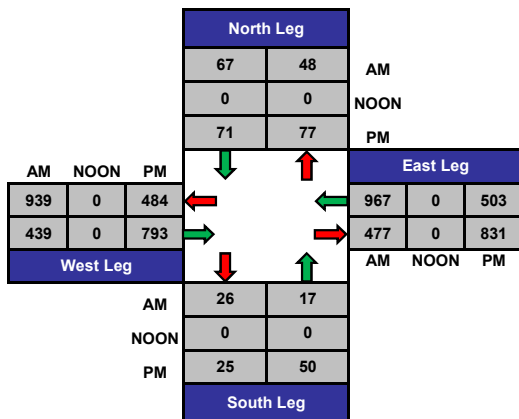
Day: Tuesday

Project #: 16-5764-017

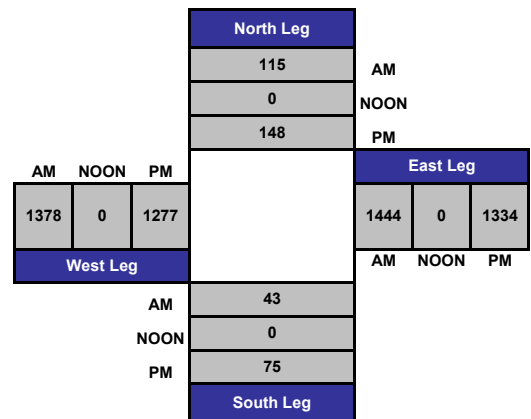
City: Rancho Palos Verdes



Total Ins & Outs



Total Volume Per Leg



CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : Forrestal-TrumpNational_PalosVerdesDrSouth

Site Code : 00000000

Start Date : 11/14/2018

Page No : 1

Groups Printed- Vehicles

	Forrestal Dr Southbound			Palos Verdes Drive South Westbound			Trump National Dr Northbound			Palos Verdes Drive South Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
02:00 PM	7	0	2	6	94	12	4	0	11	3	128	1	268
02:15 PM	6	0	6	6	99	6	1	0	4	1	142	5	276
02:30 PM	4	0	3	6	125	6	5	0	7	4	134	3	297
02:45 PM	9	1	3	1	115	11	7	0	6	9	163	4	329
Total	26	1	14	19	433	35	17	0	28	17	567	13	1170
03:00 PM	14	1	7	3	135	12	4	0	3	2	218	2	401
03:15 PM	12	0	2	6	143	12	4	0	11	8	239	3	440
03:30 PM	9	0	2	3	116	14	1	0	14	16	214	1	390
03:45 PM	10	0	7	6	129	11	3	0	9	26	181	4	386
Total	45	1	18	18	523	49	12	0	37	52	852	10	1617
Grand Total	71	2	32	37	956	84	29	0	65	69	1419	23	2787
Apprch %	67.6	1.9	30.5	3.4	88.8	7.8	30.9	0	69.1	4.6	93.9	1.5	
Total %	2.5	0.1	1.1	1.3	34.3	3	1	0	2.3	2.5	50.9	0.8	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

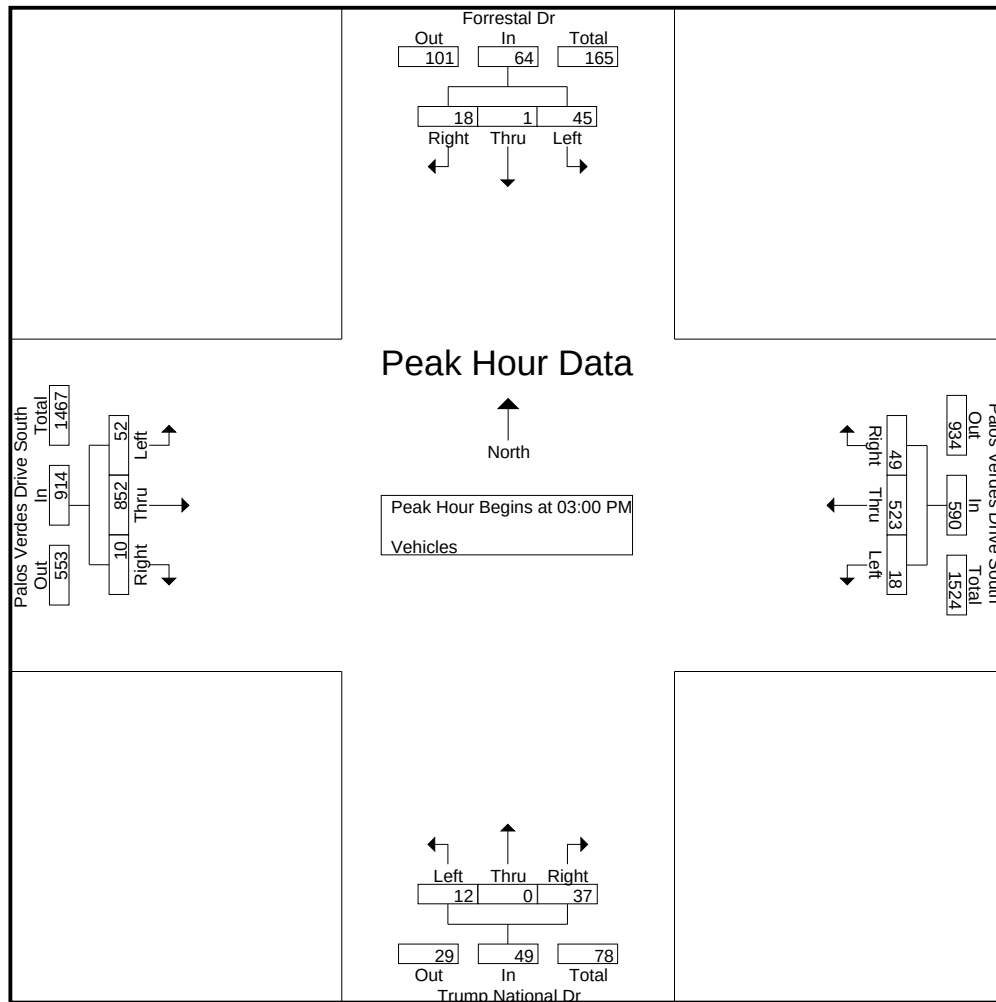
File Name : Forrestal-TrumpNational_PalosVerdesDrSouth

Site Code : 00000000

Start Date : 11/14/2018

Page No : 2

	Forrestal Dr Southbound				Palos Verdes Drive South Westbound				Trump National Dr Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	14	1	7	22	3	135	12	150	4	0	3	7	2	218	2	222	401
03:15 PM	12	0	2	14	6	143	12	161	4	0	11	15	8	239	3	250	440
03:30 PM	9	0	2	11	3	116	14	133	1	0	14	15	16	214	1	231	390
03:45 PM	10	0	7	17	6	129	11	146	3	0	9	12	26	181	4	211	386
Total Volume	45	1	18	64	18	523	49	590	12	0	37	49	52	852	10	914	1617
% App. Total	70.3	1.6	28.1		3.1	88.6	8.3		24.5	0	75.5		5.7	93.2	1.1		
PHF	.804	.250	.643	.727	.750	.914	.875	.916	.750	.000	.661	.817	.500	.891	.625	.914	.919



ITM Peak Hour Summary

Prepared by:

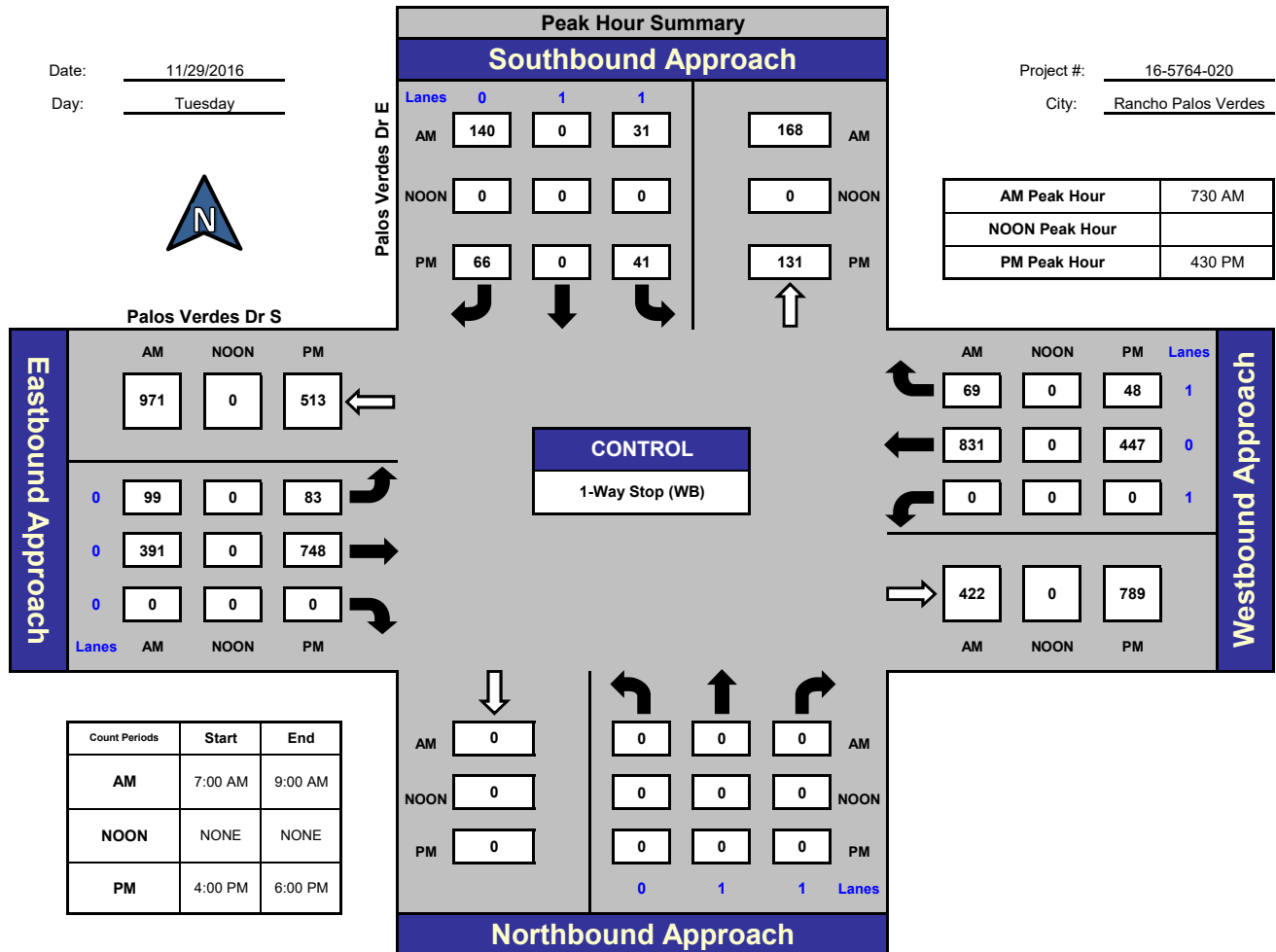


National Data & Surveying Services

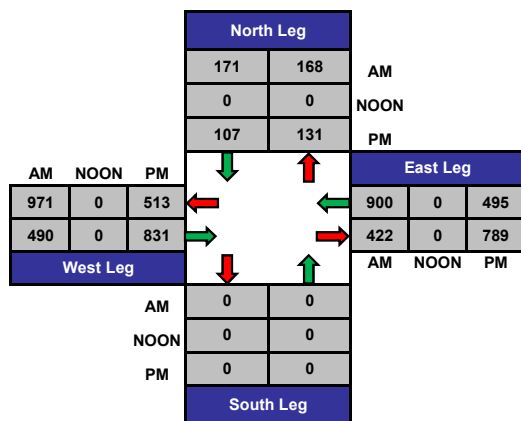
Palos Verdes Dr E and Palos Verdes Dr S , Rancho Palos Verdes

Date: 11/29/2016
Day: Tuesday

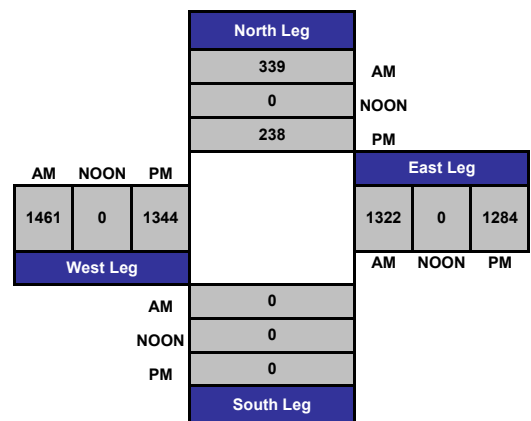
Project #: 16-5764-020
City: Rancho Palos Verdes



Total Ins & Outs



Total Volume Per Leg



CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

File Name : PalosVerdesDrEast_PalosVerdesDrSouth

Site Code : 00000000

Start Date : 11/14/2018

Page No : 1

Groups Printed- Vehicles

	Palos Verdes Drive East Southbound			Palos Verdes Drive South Westbound			Northbound			Palos Verdes Drive South Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
02:00 PM	5	0	11	0	96	9	0	0	0	17	132	0	270
02:15 PM	13	0	19	0	96	4	0	0	0	19	134	0	285
02:30 PM	9	0	23	0	117	10	0	0	0	16	128	0	303
02:45 PM	8	0	22	0	108	13	0	0	0	26	138	0	315
Total	35	0	75	0	417	36	0	0	0	78	532	0	1173
03:00 PM	12	0	20	0	125	13	0	0	0	51	172	0	393
03:15 PM	18	0	46	0	107	11	0	0	0	50	220	0	452
03:30 PM	17	0	20	0	115	6	0	0	0	29	205	0	392
03:45 PM	9	0	22	0	126	17	0	0	0	34	173	0	381
Total	56	0	108	0	473	47	0	0	0	164	770	0	1618
Grand Total	91	0	183	0	890	83	0	0	0	242	1302	0	2791
Apprch %	33.2	0	66.8	0	91.5	8.5	0	0	0	15.7	84.3	0	
Total %	3.3	0	6.6	0	31.9	3	0	0	0	8.7	46.6	0	

CITY TRAFFIC COUNTERS

WWW.CTCOUNTERS.COM

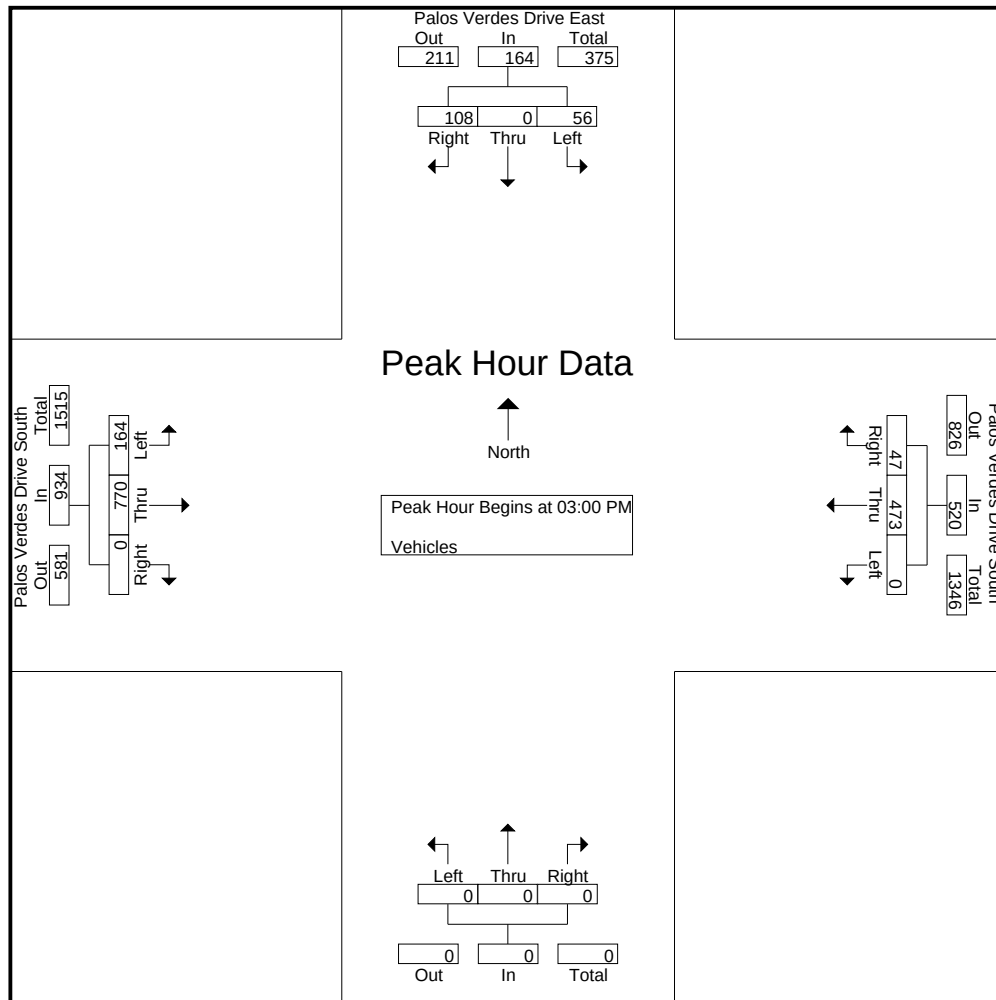
File Name : PalosVerdesDrEast_PalosVerdesDrSouth

Site Code : 00000000

Start Date : 11/14/2018

Page No : 2

	Palos Verdes Drive East Southbound				Palos Verdes Drive South Westbound				Northbound				Palos Verdes Drive South Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	12	0	20	32	0	125	13	138	0	0	0	0	51	172	0	223	393
03:15 PM	18	0	46	64	0	107	11	118	0	0	0	0	50	220	0	270	452
03:30 PM	17	0	20	37	0	115	6	121	0	0	0	0	29	205	0	234	392
03:45 PM	9	0	22	31	0	126	17	143	0	0	0	0	34	173	0	207	381
Total Volume	56	0	108	164	0	473	47	520	0	0	0	0	164	770	0	934	1618
% App. Total	34.1	0	65.9		0	91	9		0	0	0		17.6	82.4	0		
PHF	.778	.000	.587	.641	.000	.938	.691	.909	.000	.000	.000	.000	.804	.875	.000	.865	.895



Classification Definitions			
1	Motorcycles	4	Buses
2	Passenger Cars	5	2-Axle, 6-Tire Single Units
3	2-Axle, 4-Tire Single Units	6	3-Axle Single Units
		7	>=4-Axle Single Units
		8	<=4-Axle Single Trailers
		9	5-Axle Single Trailers
		10	>=6-Axle Single Trailers
		11	<=5-Axle Multi-Trailers
		12	6-Axle Multi-Trailers
		13	>=7-Axle Multi-Trailers

CLASSIFICATION

Palos Verdes Dr S Bet. 1500' W/O Schooner and Palos Verdes Dr E

Day: Tuesday

Date: 11/29/2016

City: Rancho Palos Verdes

Project #: CA16_5763_027

Summary

Time	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	# 10	# 11	# 12	# 13	Total
0:00 AM	0	55	0	0	0	0	0	0	0	0	0	0	0	55
1:00	0	21	2	0	1	0	0	0	0	0	0	0	0	24
2:00	0	29	1	0	0	0	0	0	0	0	0	0	0	30
3:00	0	18	5	0	0	0	0	0	0	0	0	0	0	23
4:00	0	40	4	0	0	0	0	0	0	0	0	0	0	44
5:00	0	203	13	0	9	0	0	0	0	0	0	0	0	225
6:00	0	502	52	0	9	1	0	0	0	0	0	0	0	564
7:00	0	1098	111	3	34	0	0	2	0	0	0	0	0	1248
8:00	0	1102	109	6	23	2	0	0	0	0	0	0	0	1242
9:00	0	793	85	2	21	4	0	0	0	0	0	0	0	905
10:00	0	632	60	0	26	2	0	0	0	0	0	0	0	720
11:00	1	701	80	2	19	3	0	0	0	0	0	0	0	806
12:00 PM	0	776	72	1	22	6	0	0	0	0	0	0	0	877
13:00	0	730	79	1	25	1	0	1	0	0	0	0	0	837
14:00	1	956	77	2	22	3	0	0	0	0	0	0	0	1061
15:00	0	1094	88	1	24	1	0	0	0	0	0	0	0	1208
16:00	0	1108	101	2	33	3	0	1	0	0	0	0	0	1248
17:00	1	1092	102	2	32	0	0	0	0	0	0	0	0	1229
18:00	1	721	41	2	13	0	0	0	0	0	0	0	0	778
19:00	0	451	23	0	2	0	0	0	0	0	0	0	0	476
20:00	0	362	13	0	3	0	0	0	0	0	0	0	0	378
21:00	0	289	16	1	1	0	0	0	0	0	0	0	0	307
22:00	0	206	5	0	1	0	0	0	0	0	0	0	0	212
23:00	1	106	6	0	2	0	0	0	0	0	0	0	0	115
Totals	5	13085	1145	25	322	26	4	0%						14612
% of Totals	0%	90%	8%	0%	2%	0%								100%

Directional Peak Periods			All Classes		AM 7-9		NOON 12-2		PM 4-6		Off Peak Volumes	
			Volume	%	Volume	%	Volume	%	Volume	%	Volume	%
AM Volumes	1	5194	522	13	142	12	0	0	0	0	0	0
% AM	0%	36%	4%	0%	1%	0%						
AM Peak Hour	11:00	8:00	7:00	8:00	7:00	9:00						
Volume	1	1102	111	6	34	4						
PM Volumes	4	7891	623	12	180	14	0	0	0	0	0	0
% PM	0%	54%	4%	0%	1%	0%						
PM Peak Hour	14:00	16:00	17:00	14:00	16:00	12:00						
Volume	1	1108	102	2	33	6						
			2490	17%	1714	12%	1714	12%	2477	17%	7931	54%

Classification Definitions									
1 Motorcycles	4 Buses	7 >=4-Axle Single Units	10 >=6-Axle Single Trailers	13 >=7-Axle Multi-Trailers					
2 Passenger Cars	5 2-Axle, 6-Tire Single Units	8 <=4-Axle Single Trailers	11 <=5-Axle Multi-Trailers						
3 2-Axle, 4-Tire Single Units	6 3-Axle Single Units	9 5-Axle Single Trailers	12 6-Axle Multi-Trailers						

APPENDIX B

INTERSECTION LEVELS OF SERVICE DATA WORKSHEETS HCM AND LEVELS OF SERVICE EXPLANATION

LEVEL OF SERVICE FOR UNSIGNALIZED INTERSECTIONS

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

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

Level of Service Criteria for TWSC/AWSC Intersections	
Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10
B	$> 10 \text{ and } \leq 15$
C	$> 15 \text{ and } \leq 25$
D	$> 25 \text{ and } \leq 35$
E	$> 35 \text{ and } \leq 50$
F	> 50

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

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

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

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

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

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

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

APPENDIX B-1

EXISTING CONDITIONS

Intersection												
Int Delay, s/veh	8.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	795	4	31	494	135	0	0	3	108	0	74
Future Vol, veh/h	58	795	4	31	494	135	0	0	3	108	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	61	837	4	33	520	142	0	0	3	114	0	78

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	662	0	0	841	0	0	-	-	421	1127	1549	260
Stage 1	-	-	-	-	-	-	-	-	-	586	586	-
Stage 2	-	-	-	-	-	-	-	-	-	541	963	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	936	-	-	803	-	-	0	0	587	162	115	745
Stage 1	-	-	-	-	-	-	0	0	-	468	500	-
Stage 2	-	-	-	-	-	-	0	0	-	498	337	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	936	-	-	803	-	-	-	-	587	148	103	745
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	148	103	-
Stage 1	-	-	-	-	-	-	-	-	-	438	480	-
Stage 2	-	-	-	-	-	-	-	-	-	463	315	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.5	11.2	77.5
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	587	936	-	-	803	-	-	220
HCM Lane V/C Ratio	0.005	0.065	-	-	0.041	-	-	0.871
HCM Control Delay (s)	11.2	9.1	-	-	9.7	-	-	77.5
HCM Lane LOS	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-	-	6.9

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	400	17	21	970	8	86	0	38	0	0	0
Future Vol, veh/h	5	400	17	21	970	8	86	0	38	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	421	18	22	1021	8	91	0	40	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1029	0	0	439	0	0	995	1513	220	1286	1514	511
Stage 1	-	-	-	-	-	-	440	440	-	1065	1065	-
Stage 2	-	-	-	-	-	-	555	1073	-	221	449	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	683	-	-	1132	-	-	202	121	790	124	121	513
Stage 1	-	-	-	-	-	-	571	581	-	241	302	-
Stage 2	-	-	-	-	-	-	489	299	-	767	576	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	683	-	-	1132	-	-	198	118	790	115	118	513
Mov Cap-2 Maneuver	-	-	-	-	-	-	198	118	-	115	118	-
Stage 1	-	-	-	-	-	-	567	577	-	239	296	-
Stage 2	-	-	-	-	-	-	479	293	-	723	572	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	32.6	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	257	683	-	-	1132	-	-	-
HCM Lane V/C Ratio	0.508	0.008	-	-	0.02	-	-	-
HCM Control Delay (s)	32.6	10.3	-	-	8.2	-	-	0
HCM Lane LOS	D	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	2.7	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	408	10	15	1019	2	19	0	8	3	0	6
Future Vol, veh/h	24	408	10	15	1019	2	19	0	8	3	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	25	429	11	16	1073	2	20	0	8	3	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1075	0	0	440	0	0	1054	1592	220	1370	1595	537
Stage 1	-	-	-	-	-	-	485	485	-	1105	1105	-
Stage 2	-	-	-	-	-	-	569	1107	-	265	490	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	656	-	-	1131	-	-	183	108	790	107	108	494
Stage 1	-	-	-	-	-	-	537	555	-	228	289	-
Stage 2	-	-	-	-	-	-	479	288	-	723	552	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	656	-	-	1131	-	-	173	102	790	102	102	494
Mov Cap-2 Maneuver	-	-	-	-	-	-	173	102	-	102	102	-
Stage 1	-	-	-	-	-	-	517	534	-	219	285	-
Stage 2	-	-	-	-	-	-	466	284	-	688	531	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	23.3	22.3
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	225	656	-	-	1131	-	-	217
HCM Lane V/C Ratio	0.126	0.039	-	-	0.014	-	-	0.044
HCM Control Delay (s)	23.3	10.7	-	-	8.2	-	-	22.3
HCM Lane LOS	C	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	393	2	1	1019	14	0	0	0	9	0	18
Future Vol, veh/h	14	393	2	1	1019	14	0	0	0	9	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	414	2	1	1073	15	0	0	0	9	0	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1073	0	0	416	0	0	1520	1520	415	1520	1521	-
Stage 1	-	-	-	-	-	-	445	445	-	1075	1075	-
Stage 2	-	-	-	-	-	-	1075	1075	-	445	446	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	657	-	-	1154	-	0	98	120	642	98	120	0
Stage 1	-	-	-	-	-	0	596	578	-	268	298	0
Stage 2	-	-	-	-	-	0	268	298	-	596	577	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	657	-	-	1154	-	-	96	117	642	96	117	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	117	-	96	117	-
Stage 1	-	-	-	-	-	-	582	565	-	262	298	-
Stage 2	-	-	-	-	-	-	268	298	-	582	564	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	46.6
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	657	-	-	1154	-	96	-
HCM Lane V/C Ratio	-	0.022	-	-	0.001	-	0.099	-
HCM Control Delay (s)	0	10.6	-	-	8.1	-	46.6	0
HCM Lane LOS	A	B	-	-	A	-	E	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.3	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	392	1028	12	16	8
Future Vol, veh/h	6	392	1028	12	16	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	6	413	1082	13	17	8
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1095	0	-	0	1507	1082
Stage 1	-	-	-	-	1082	-
Stage 2	-	-	-	-	425	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	645	-	-	-	134	267
Stage 1	-	-	-	-	328	-
Stage 2	-	-	-	-	664	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	645	-	-	-	133	267
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	325	-
Stage 2	-	-	-	-	664	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		30.3		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	645	-	-	-	133	267
HCM Lane V/C Ratio	0.01	-	-	-	0.127	0.032
HCM Control Delay (s)	10.6	-	-	-	36	18.9
HCM Lane LOS	B	-	-	-	E	C
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0.1

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	446	4	24	947	40	6	0	14	46	1	24
Future Vol, veh/h	11	446	4	24	947	40	6	0	14	46	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	469	4	25	997	42	6	0	15	48	1	25
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1039	0	0	473	0	0	1574	1582	469	1550	1544	997
Stage 1	-	-	-	-	-	-	493	493	-	1047	1047	-
Stage 2	-	-	-	-	-	-	1081	1089	-	503	497	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	677	-	-	1099	-	-	90	110	598	94	116	299
Stage 1	-	-	-	-	-	-	562	550	-	278	308	-
Stage 2	-	-	-	-	-	-	266	294	-	555	548	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	677	-	-	1099	-	-	79	105	598	89	111	299
Mov Cap-2 Maneuver	-	-	-	-	-	-	79	105	-	89	111	-
Stage 1	-	-	-	-	-	-	552	540	-	273	301	-
Stage 2	-	-	-	-	-	-	237	287	-	532	538	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.2			24.2			62.3		
HCM LOS							C			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	79	598	677	-	-	1099	-	-	89	280		
HCM Lane V/C Ratio	0.08	0.025	0.017	-	-	0.023	-	-	0.544	0.094		
HCM Control Delay (s)	54.5	11.2	10.4	-	-	8.4	-	-	85.8	19.2		
HCM Lane LOS	F	B	B	-	-	A	-	-	F	C		
HCM 95th %tile Q(veh)	0.3	0.1	0.1	-	-	0.1	-	-	2.4	0.3		

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	106	413	867	72	31	153
Future Vol, veh/h	106	413	867	72	31	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	112	435	913	76	33	161
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	989	0	-	0	1572	913
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	659	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	707	-	-	-	123	334
Stage 1	-	-	-	-	395	-
Stage 2	-	-	-	-	518	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	707	-	-	-	104	334
Mov Cap-2 Maneuver	-	-	-	-	104	-
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	518	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.3	0		30.3		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	707	-	-	-	104	334
HCM Lane V/C Ratio	0.158	-	-	-	0.314	0.482
HCM Control Delay (s)	11	-	-	-	54.7	25.4
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.6	-	-	-	1.2	2.5

Intersection												
Int Delay, s/veh	16											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	752	2	25	795	107	0	0	10	96	1	59
Future Vol, veh/h	45	752	2	25	795	107	0	0	10	96	1	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	47	792	2	26	837	113	0	0	11	101	1	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	950	0	0	794	0	0	-	-	397	1379	1777	419
Stage 1	-	-	-	-	-	-	-	-	-	889	889	-
Stage 2	-	-	-	-	-	-	-	-	-	490	888	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	731	-	-	836	-	-	0	0	608	106	83	589
Stage 1	-	-	-	-	-	-	0	0	-	309	364	-
Stage 2	-	-	-	-	-	-	0	0	-	534	365	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	731	-	-	836	-	-	-	-	608	~ 97	75	589
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ 97	75	-
Stage 1	-	-	-	-	-	-	-	-	-	289	353	-
Stage 2	-	-	-	-	-	-	-	-	-	491	342	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	11	189
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	608	731	-	-	836	-	-	141
HCM Lane V/C Ratio	0.017	0.065	-	-	0.031	-	-	1.165
HCM Control Delay (s)	11	10.3	-	-	9.4	-	-	189
HCM Lane LOS	B	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-	-	9.4

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	928	53	34	509	4	50	0	26	5	0	1
Future Vol, veh/h	10	928	53	34	509	4	50	0	26	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	977	56	36	536	4	53	0	27	5	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	540	0	0	1033	0	0	1367	1639	517	1119	1663	268
Stage 1	-	-	-	-	-	-	1027	1027	-	608	608	-
Stage 2	-	-	-	-	-	-	340	612	-	511	1055	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1039	-	-	681	-	-	108	101	509	164	98	736
Stage 1	-	-	-	-	-	-	255	314	-	454	489	-
Stage 2	-	-	-	-	-	-	654	487	-	519	305	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1039	-	-	681	-	-	103	95	509	148	92	736
Mov Cap-2 Maneuver	-	-	-	-	-	-	103	95	-	148	92	-
Stage 1	-	-	-	-	-	-	252	311	-	449	463	-
Stage 2	-	-	-	-	-	-	619	461	-	486	302	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	58.9	26.9
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	142	1039	-	-	681	-	-	171
HCM Lane V/C Ratio	0.563	0.01	-	-	0.053	-	-	0.037
HCM Control Delay (s)	58.9	8.5	-	-	10.6	-	-	26.9
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	2.8	0	-	-	0.2	-	-	0.1

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	919	21	4	530	7	9	0	3	4	0	8
Future Vol, veh/h	12	919	21	4	530	7	9	0	3	4	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	967	22	4	558	7	9	0	3	4	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	565	0	0	989	0	0	1291	1577	495	1076	1581	279
Stage 1	-	-	-	-	-	-	1004	1004	-	566	566	-
Stage 2	-	-	-	-	-	-	287	573	-	510	1015	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1017	-	-	707	-	-	123	111	525	176	110	724
Stage 1	-	-	-	-	-	-	263	322	-	481	511	-
Stage 2	-	-	-	-	-	-	702	507	-	519	318	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1017	-	-	707	-	-	120	109	525	172	108	724
Mov Cap-2 Maneuver	-	-	-	-	-	-	120	109	-	172	108	-
Stage 1	-	-	-	-	-	-	260	318	-	475	508	-
Stage 2	-	-	-	-	-	-	690	504	-	509	314	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	31.4	15.7
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	149	1017	-	-	707	-	-	350
HCM Lane V/C Ratio	0.085	0.012	-	-	0.006	-	-	0.036
HCM Control Delay (s)	31.4	8.6	-	-	10.1	-	-	15.7
HCM Lane LOS	D	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	902	0	0	515	13	0	0	0	14	0	20
Future Vol, veh/h	31	902	0	0	515	13	0	0	0	14	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	33	949	0	0	542	14	0	0	0	15	0	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	542	0	0	949	0	0	1557	1557	949	1557	1557	-
Stage 1	-	-	-	-	-	-	1015	1015	-	542	542	-
Stage 2	-	-	-	-	-	-	542	542	-	1015	1015	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1037	-	-	732	-	0	93	114	319	93	114	0
Stage 1	-	-	-	-	-	0	290	318	-	528	523	0
Stage 2	-	-	-	-	-	0	528	523	-	290	318	0
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1037	-	-	732	-	-	91	110	319	91	110	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	91	110	-	91	110	-
Stage 1	-	-	-	-	-	-	281	308	-	511	523	-
Stage 2	-	-	-	-	-	-	528	523	-	281	308	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	52.1
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1037	-	-	732	-	91	-
HCM Lane V/C Ratio	-	0.031	-	-	-	-	0.162	-
HCM Control Delay (s)	0	8.6	-	-	0	-	52.1	0
HCM Lane LOS	A	A	-	-	A	-	F	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.5	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	912	522	13	14	3
Future Vol, veh/h	8	912	522	13	14	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	960	549	14	15	3
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	563	0	-	0	1525	549
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	976	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1019	-	-	-	131	539
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	368	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1019	-	-	-	130	539
Mov Cap-2 Maneuver	-	-	-	-	130	-
Stage 1	-	-	-	-	578	-
Stage 2	-	-	-	-	368	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		31.9		
HCM LOS				D		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1019	-	-	-	130	539
HCM Lane V/C Ratio	0.008	-	-	-	0.113	0.006
HCM Control Delay (s)	8.6	-	-	-	36.2	11.7
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	880	10	18	540	49	12	0	37	45	1	18
Future Vol, veh/h	52	880	10	18	540	49	12	0	37	45	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	55	926	11	19	568	52	13	0	39	47	1	19

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	620	0	0	937	0	0	1678	1694	926	1667	1653	568
Stage 1	-	-	-	-	-	-	1036	1036	-	606	606	-
Stage 2	-	-	-	-	-	-	642	658	-	1061	1047	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	970	-	-	739	-	-	76	94	329	78	99	526
Stage 1	-	-	-	-	-	-	282	311	-	487	490	-
Stage 2	-	-	-	-	-	-	466	464	-	273	308	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	970	-	-	739	-	-	68	86	329	65	91	526
Mov Cap-2 Maneuver	-	-	-	-	-	-	68	86	-	65	91	-
Stage 1	-	-	-	-	-	-	266	293	-	459	477	-
Stage 2	-	-	-	-	-	-	437	452	-	227	290	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.3	30.2	107.7
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	68	329	970	-	-	739	-	-	65	420
HCM Lane V/C Ratio	0.186	0.118	0.056	-	-	0.026	-	-	0.729	0.048
HCM Control Delay (s)	69.6	17.4	8.9	-	-	10	-	-	147.3	14
HCM Lane LOS	F	C	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0.6	0.4	0.2	-	-	0.1	-	-	3.3	0.1

Intersection						
Int Delay, s/veh	5.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	164	795	488	47	56	108
Future Vol, veh/h	164	795	488	47	56	108
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	173	837	514	49	59	114
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	563	0	-	0	1697	514
Stage 1	-	-	-	-	514	-
Stage 2	-	-	-	-	1183	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1019	-	-	-	103	564
Stage 1	-	-	-	-	605	-
Stage 2	-	-	-	-	294	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1019	-	-	-	85	564
Mov Cap-2 Maneuver	-	-	-	-	85	-
Stage 1	-	-	-	-	502	-
Stage 2	-	-	-	-	294	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		47		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1019	-	-	-	85	564
HCM Lane V/C Ratio	0.169	-	-	-	0.693	0.202
HCM Control Delay (s)	9.3	-	-	-	112.5	13
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.6	-	-	-	3.3	0.7

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	545	4	7	649	72	0	0	9	74	0	21
Future Vol, veh/h	47	545	4	7	649	72	0	0	9	74	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	49	574	4	7	683	76	0	0	9	78	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	759	0	0	578	0	0	-	-	289	1082	1373	342
Stage 1	-	-	-	-	-	-	-	-	-	697	697	-
Stage 2	-	-	-	-	-	-	-	-	-	385	676	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	862	-	-	1006	-	-	0	0	714	175	147	660
Stage 1	-	-	-	-	-	-	0	0	-	402	446	-
Stage 2	-	-	-	-	-	-	0	0	-	615	456	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	862	-	-	1006	-	-	-	-	714	164	138	660
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	164	138	-
Stage 1	-	-	-	-	-	-	-	-	-	379	443	-
Stage 2	-	-	-	-	-	-	-	-	-	572	430	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	10.1	40.7
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	714	862	-	-	1006	-	-	197
HCM Lane V/C Ratio	0.013	0.057	-	-	0.007	-	-	0.508
HCM Control Delay (s)	10.1	9.4	-	-	8.6	-	-	40.7
HCM Lane LOS	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	2.6

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	657	56	40	506	1	47	0	21	7	1	2
Future Vol, veh/h	13	657	56	40	506	1	47	0	21	7	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	692	59	42	533	1	49	0	22	7	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	534	0	0	751	0	0	1101	1368	376	991	1396	267
Stage 1	-	-	-	-	-	-	750	750	-	617	617	-
Stage 2	-	-	-	-	-	-	351	618	-	374	779	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1044	-	-	868	-	-	169	148	627	203	142	737
Stage 1	-	-	-	-	-	-	374	422	-	449	484	-
Stage 2	-	-	-	-	-	-	644	484	-	624	409	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1044	-	-	868	-	-	160	139	627	187	133	737
Mov Cap-2 Maneuver	-	-	-	-	-	-	160	139	-	187	133	-
Stage 1	-	-	-	-	-	-	369	417	-	443	461	-
Stage 2	-	-	-	-	-	-	610	461	-	594	404	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.7			31.1			23		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	208	1044	-	-	868	-	-	210				
HCM Lane V/C Ratio	0.344	0.013	-	-	0.049	-	-	0.05				
HCM Control Delay (s)	31.1	8.5	-	-	9.4	-	-	23				
HCM Lane LOS	D	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	1.5	0	-	-	0.2	-	-	0.2				

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	831	14	12	498	5	10	0	4	4	0	3
Future Vol, veh/h	9	831	14	12	498	5	10	0	4	4	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	875	15	13	524	5	11	0	4	4	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	529	0	0	890	0	0	1189	1456	445	1006	1458	262
Stage 1	-	-	-	-	-	-	901	901	-	550	550	-
Stage 2	-	-	-	-	-	-	288	555	-	456	908	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1048	-	-	770	-	-	146	131	566	198	131	743
Stage 1	-	-	-	-	-	-	303	360	-	492	519	-
Stage 2	-	-	-	-	-	-	701	516	-	559	357	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1048	-	-	770	-	-	143	128	566	193	128	743
Mov Cap-2 Maneuver	-	-	-	-	-	-	143	128	-	193	128	-
Stage 1	-	-	-	-	-	-	300	357	-	488	510	-
Stage 2	-	-	-	-	-	-	686	507	-	550	354	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	26.5	18.1
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	182	1048	-	-	770	-	-	283
HCM Lane V/C Ratio	0.081	0.009	-	-	0.016	-	-	0.026
HCM Control Delay (s)	26.5	8.5	-	-	9.8	-	-	18.1
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	827	0	0	482	11	0	0	0	17	0	26
Future Vol, veh/h	18	827	0	0	482	11	0	0	0	17	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	19	871	0	0	507	12	0	0	0	18	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	507	0	0	871	0	0	1416	1416	871	1416	1416	-
Stage 1	-	-	-	-	-	-	909	909	-	507	507	-
Stage 2	-	-	-	-	-	-	507	507	-	909	909	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1068	-	-	783	-	0	116	139	353	116	139	0
Stage 1	-	-	-	-	-	0	332	357	-	552	543	0
Stage 2	-	-	-	-	-	0	552	543	-	332	357	0
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1068	-	-	783	-	-	114	136	353	114	136	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	114	136	-	114	136	-
Stage 1	-	-	-	-	-	-	326	351	-	542	543	-
Stage 2	-	-	-	-	-	-	552	543	-	326	351	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	0	42.4
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1068	-	-	783	-	114	-
HCM Lane V/C Ratio	-	0.018	-	-	-	-	0.157	-
HCM Control Delay (s)	0	8.4	-	-	0	-	42.4	0
HCM Lane LOS	A	A	-	-	A	-	E	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.5	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	833	486	14	12	5
Future Vol, veh/h	3	833	486	14	12	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	877	512	15	13	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	527	0	-	0	1395	512
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	883	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1050	-	-	-	157	566
Stage 1	-	-	-	-	606	-
Stage 2	-	-	-	-	408	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1050	-	-	-	157	566
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	408	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		24.5		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1050	-	-	-	157	566
HCM Lane V/C Ratio	0.003	-	-	-	0.08	0.009
HCM Control Delay (s)	8.4	-	-	-	29.9	11.4
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	783	4	21	459	41	14	2	34	45	0	27
Future Vol, veh/h	36	783	4	21	459	41	14	2	34	45	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	38	824	4	22	483	43	15	2	36	47	0	28
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	526	0	0	828	0	0	1463	1470	824	1448	1431	483
Stage 1	-	-	-	-	-	-	900	900	-	527	527	-
Stage 2	-	-	-	-	-	-	563	570	-	921	904	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1051	-	-	812	-	-	108	129	376	110	136	588
Stage 1	-	-	-	-	-	-	336	360	-	538	532	-
Stage 2	-	-	-	-	-	-	514	509	-	327	358	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1051	-	-	812	-	-	98	121	376	94	128	588
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	121	-	94	128	-
Stage 1	-	-	-	-	-	-	324	347	-	519	518	-
Stage 2	-	-	-	-	-	-	476	495	-	283	345	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.4			25.7			52.5		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	98	337	1051	-	-	812	-	-	94	588		
HCM Lane V/C Ratio	0.15	0.112	0.036	-	-	0.027	-	-	0.504	0.048		
HCM Control Delay (s)	48.1	17	8.6	-	-	9.6	-	-	77.1	11.4		
HCM Lane LOS	E	C	A	-	-	A	-	-	F	B		
HCM 95th %tile Q(veh)	0.5	0.4	0.1	-	-	0.1	-	-	2.2	0.2		

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	87	778	457	49	41	70
Future Vol, veh/h	87	778	457	49	41	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	92	819	481	52	43	74
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	533	0	-	0	1484	481
Stage 1	-	-	-	-	481	-
Stage 2	-	-	-	-	1003	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1045	-	-	-	139	589
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	358	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1045	-	-	-	127	589
Mov Cap-2 Maneuver	-	-	-	-	127	-
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	358	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		25		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1045	-	-	-	127	589
HCM Lane V/C Ratio	0.088	-	-	-	0.34	0.125
HCM Control Delay (s)	8.8	-	-	-	47.3	12
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1.4	0.4

APPENDIX B-2

EXISTING WITH PROJECT CONDITIONS

Intersection												
Int Delay, s/veh	9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	58	801	4	31	496	135	0	0	3	108	0	74
Future Vol, veh/h	58	801	4	31	496	135	0	0	3	108	0	74
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	61	843	4	33	522	142	0	0	3	114	0	78
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	664	0	0	847	0	0	-	-	424	1132	1557	261
Stage 1	-	-	-	-	-	-	-	-	-	588	588	-
Stage 2	-	-	-	-	-	-	-	-	-	544	969	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	935	-	-	799	-	-	0	0	584	160	114	744
Stage 1	-	-	-	-	-	-	0	0	-	467	499	-
Stage 2	-	-	-	-	-	-	0	0	-	496	334	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	935	-	-	799	-	-	-	-	584	147	102	744
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	147	102	-
Stage 1	-	-	-	-	-	-	-	-	-	437	479	-
Stage 2	-	-	-	-	-	-	-	-	-	461	312	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.5			11.2			79.5		
HCM LOS							B			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	584	935	-	-	799	-	-	218				
HCM Lane V/C Ratio	0.005	0.065	-	-	0.041	-	-	0.879				
HCM Control Delay (s)	11.2	9.1	-	-	9.7	-	-	79.5				
HCM Lane LOS	B	A	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-	-	7				

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	404	17	21	981	8	86	0	38	0	0	0
Future Vol, veh/h	5	404	17	21	981	8	86	0	38	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	425	18	22	1033	8	91	0	40	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1041	0	0	443	0	0	1005	1529	222	1300	1530	517
Stage 1	-	-	-	-	-	-	444	444	-	1077	1077	-
Stage 2	-	-	-	-	-	-	561	1085	-	223	453	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	676	-	-	1128	-	-	199	118	788	121	118	509
Stage 1	-	-	-	-	-	-	568	579	-	237	298	-
Stage 2	-	-	-	-	-	-	485	295	-	765	573	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	676	-	-	1128	-	-	195	115	788	113	115	509
Mov Cap-2 Maneuver	-	-	-	-	-	-	195	115	-	113	115	-
Stage 1	-	-	-	-	-	-	564	575	-	235	292	-
Stage 2	-	-	-	-	-	-	476	289	-	721	569	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	33.5	0
HCM LOS			D	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	253	676	-	-	1128	-	-	-
HCM Lane V/C Ratio	0.516	0.008	-	-	0.02	-	-	-
HCM Control Delay (s)	33.5	10.4	-	-	8.3	-	-	0
HCM Lane LOS	D	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	2.7	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	412	10	15	1030	2	19	0	8	3	0	6
Future Vol, veh/h	24	412	10	15	1030	2	19	0	8	3	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	25	434	11	16	1084	2	20	0	8	3	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1086	0	0	445	0	0	1064	1608	223	1383	1611	542
Stage 1	-	-	-	-	-	-	490	490	-	1116	1116	-
Stage 2	-	-	-	-	-	-	574	1118	-	267	495	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	650	-	-	1126	-	-	180	106	787	105	105	490
Stage 1	-	-	-	-	-	-	534	552	-	225	285	-
Stage 2	-	-	-	-	-	-	476	285	-	721	549	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	650	-	-	1126	-	-	171	101	787	100	100	490
Mov Cap-2 Maneuver	-	-	-	-	-	-	171	101	-	100	100	-
Stage 1	-	-	-	-	-	-	514	531	-	216	281	-
Stage 2	-	-	-	-	-	-	463	281	-	686	528	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	23.5	22.7
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	223	650	-	-	1126	-	-	213
HCM Lane V/C Ratio	0.127	0.039	-	-	0.014	-	-	0.044
HCM Control Delay (s)	23.5	10.8	-	-	8.2	-	-	22.7
HCM Lane LOS	C	B	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	395	2	1	1025	15	0	0	0	13	0	24
Future Vol, veh/h	16	395	2	1	1025	15	0	0	0	13	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	17	416	2	1	1079	16	0	0	0	14	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1079	0	0	418	0	0	1532	1532	417	1532	1533	-
Stage 1	-	-	-	-	-	-	451	451	-	1081	1081	-
Stage 2	-	-	-	-	-	-	1081	1081	-	451	452	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	654	-	-	1152	-	0	96	118	640	96	118	0
Stage 1	-	-	-	-	-	0	592	574	-	266	296	0
Stage 2	-	-	-	-	-	0	266	296	-	592	574	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	654	-	-	1152	-	-	94	115	640	94	115	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	115	-	94	115	-
Stage 1	-	-	-	-	-	-	577	559	-	259	296	-
Stage 2	-	-	-	-	-	-	266	296	-	577	559	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	49.7
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	654	-	-	1152	-	94	-
HCM Lane V/C Ratio	-	0.026	-	-	0.001	-	0.146	-
HCM Control Delay (s)	0	10.7	-	-	8.1	-	49.7	0
HCM Lane LOS	A	B	-	-	A	-	E	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.5	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	396	1029	13	18	14
Future Vol, veh/h	8	396	1029	13	18	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	417	1083	14	19	15
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1097	0	-	0	1516	1083
Stage 1	-	-	-	-	1083	-
Stage 2	-	-	-	-	433	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	644	-	-	-	133	266
Stage 1	-	-	-	-	328	-
Stage 2	-	-	-	-	658	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	644	-	-	-	131	266
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	658	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.2		0		29.3	
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	644	-	-	-	131	266
HCM Lane V/C Ratio	0.013	-	-	-	0.145	0.055
HCM Control Delay (s)	10.7	-	-	-	37.1	19.3
HCM Lane LOS	B	-	-	-	E	C
HCM 95th %tile Q(veh)	0	-	-	-	0.5	0.2

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	452	4	24	949	40	6	0	14	46	1	24
Future Vol, veh/h	11	452	4	24	949	40	6	0	14	46	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	476	4	25	999	42	6	0	15	48	1	25

Major/Minor	Major1			Major2			Minor1		Minor2			
Conflicting Flow All	1041	0	0	480	0	0	1583	1591	476	1559	1553	999
Stage 1	-	-	-	-	-	-	500	500	-	1049	1049	-
Stage 2	-	-	-	-	-	-	1083	1091	-	510	504	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	676	-	-	1093	-	-	89	108	593	92	114	298
Stage 1	-	-	-	-	-	-	557	546	-	277	307	-
Stage 2	-	-	-	-	-	-	265	293	-	550	544	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	676	-	-	1093	-	-	78	104	593	87	109	298
Mov Cap-2 Maneuver	-	-	-	-	-	-	78	104	-	87	109	-
Stage 1	-	-	-	-	-	-	547	536	-	272	300	-
Stage 2	-	-	-	-	-	-	236	286	-	527	534	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	24.4	64.5
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	78	593	676	-	-	1093	-	-	87	279
HCM Lane V/C Ratio	0.081	0.025	0.017	-	-	0.023	-	-	0.557	0.094
HCM Control Delay (s)	55.2	11.2	10.4	-	-	8.4	-	-	89.1	19.2
HCM Lane LOS	F	B	B	-	-	A	-	-	F	C
HCM 95th %tile Q(veh)	0.3	0.1	0.1	-	-	0.1	-	-	2.5	0.3

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	108	417	869	72	31	154
Future Vol, veh/h	108	417	869	72	31	154
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	114	439	915	76	33	162
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	991	0	-	0	1582	915
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	667	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	706	-	-	-	121	333
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	514	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	706	-	-	-	102	333
Mov Cap-2 Maneuver	-	-	-	-	102	-
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	514	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.3	0		30.7		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	706	-	-	-	102	333
HCM Lane V/C Ratio	0.161	-	-	-	0.32	0.487
HCM Control Delay (s)	11.1	-	-	-	56.1	25.6
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.6	-	-	-	1.2	2.5

Intersection												
Int Delay, s/veh	16.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	756	2	25	802	107	0	0	10	96	1	59
Future Vol, veh/h	45	756	2	25	802	107	0	0	10	96	1	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	47	796	2	26	844	113	0	0	11	101	1	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	957	0	0	798	0	0	-	-	399	1388	1788	422
Stage 1	-	-	-	-	-	-	-	-	-	896	896	-
Stage 2	-	-	-	-	-	-	-	-	-	492	892	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	727	-	-	833	-	-	0	0	606	104	82	586
Stage 1	-	-	-	-	-	-	0	0	-	306	362	-
Stage 2	-	-	-	-	-	-	0	0	-	532	363	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	727	-	-	833	-	-	-	-	606	~ 95	74	586
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ 95	74	-
Stage 1	-	-	-	-	-	-	-	-	-	286	351	-
Stage 2	-	-	-	-	-	-	-	-	-	489	339	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.3	11	195.9
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	606	727	-	-	833	-	-	139
HCM Lane V/C Ratio	0.017	0.065	-	-	0.032	-	-	1.181
HCM Control Delay (s)	11	10.3	-	-	9.5	-	-	195.9
HCM Lane LOS	B	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-	-	9.6

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	941	53	34	516	4	50	0	26	5	0	1
Future Vol, veh/h	10	941	53	34	516	4	50	0	26	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	991	56	36	543	4	53	0	27	5	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	547	0	0	1047	0	0	1385	1660	524	1133	1684	272
Stage 1	-	-	-	-	-	-	1041	1041	-	615	615	-
Stage 2	-	-	-	-	-	-	344	619	-	518	1069	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1033	-	-	672	-	-	105	98	503	160	95	732
Stage 1	-	-	-	-	-	-	250	310	-	450	485	-
Stage 2	-	-	-	-	-	-	650	483	-	514	300	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1033	-	-	672	-	-	100	92	503	144	89	732
Mov Cap-2 Maneuver	-	-	-	-	-	-	100	92	-	144	89	-
Stage 1	-	-	-	-	-	-	247	307	-	445	459	-
Stage 2	-	-	-	-	-	-	614	457	-	481	297	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	62	27.5
HCM LOS			F	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	138	1033	-	-	672	-	-	166
HCM Lane V/C Ratio	0.58	0.01	-	-	0.053	-	-	0.038
HCM Control Delay (s)	62	8.5	-	-	10.7	-	-	27.5
HCM Lane LOS	F	A	-	-	B	-	-	D
HCM 95th %tile Q(veh)	2.9	0	-	-	0.2	-	-	0.1

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	932	21	4	537	7	9	0	3	4	0	8
Future Vol, veh/h	12	932	21	4	537	7	9	0	3	4	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	981	22	4	565	7	9	0	3	4	0	8

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	572	0	0	1003	0	0	1309	1598	502	1090	1602	283
Stage 1	-	-	-	-	-	-	1018	1018	-	573	573	-
Stage 2	-	-	-	-	-	-	291	580	-	517	1029	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1011	-	-	698	-	-	119	107	520	172	107	720
Stage 1	-	-	-	-	-	-	258	317	-	477	507	-
Stage 2	-	-	-	-	-	-	698	503	-	515	314	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1011	-	-	698	-	-	116	105	520	169	105	720
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	105	-	169	105	-
Stage 1	-	-	-	-	-	-	255	313	-	471	504	-
Stage 2	-	-	-	-	-	-	686	500	-	505	310	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	32.4	15.8
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	144	1011	-	-	698	-	-	345
HCM Lane V/C Ratio	0.088	0.012	-	-	0.006	-	-	0.037
HCM Control Delay (s)	32.4	8.6	-	-	10.2	-	-	15.8
HCM Lane LOS	D	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	909	0	0	519	18	0	0	0	17	0	24
Future Vol, veh/h	38	909	0	0	519	18	0	0	0	17	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	40	957	0	0	546	19	0	0	0	18	0	25
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	546	0	0	957	0	0	1583	1583	957	1583	1583	-
Stage 1	-	-	-	-	-	-	1037	1037	-	546	546	-
Stage 2	-	-	-	-	-	-	546	546	-	1037	1037	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1033	-	-	727	-	0	89	110	315	89	110	0
Stage 1	-	-	-	-	-	0	282	311	-	526	521	0
Stage 2	-	-	-	-	-	0	526	521	-	282	311	0
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1033	-	-	727	-	-	86	106	315	86	106	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	106	-	86	106	-
Stage 1	-	-	-	-	-	-	271	299	-	505	521	-
Stage 2	-	-	-	-	-	-	526	521	-	271	299	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0			0			57.5		
HCM LOS							A			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2				
Capacity (veh/h)	-	1033	-	-	727	-	86	-				
HCM Lane V/C Ratio	-	0.039	-	-	-	-	0.208	-				
HCM Control Delay (s)	0	8.6	-	-	0	-	57.5	0				
HCM Lane LOS	A	A	-	-	A	-	F	A				
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.7	-				

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	915	527	15	15	7
Future Vol, veh/h	15	915	527	15	15	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	16	963	555	16	16	7
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	571	0	-	0	1550	555
Stage 1	-	-	-	-	555	-
Stage 2	-	-	-	-	995	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1012	-	-	-	127	535
Stage 1	-	-	-	-	579	-
Stage 2	-	-	-	-	361	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1012	-	-	-	125	535
Mov Cap-2 Maneuver	-	-	-	-	125	-
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	361	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.1		0		29.6	
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1012	-	-	-	125	535
HCM Lane V/C Ratio	0.016	-	-	-	0.126	0.014
HCM Control Delay (s)	8.6	-	-	-	37.9	11.8
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	884	10	18	547	49	12	0	37	45	1	18
Future Vol, veh/h	52	884	10	18	547	49	12	0	37	45	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	55	931	11	19	576	52	13	0	39	47	1	19
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	628	0	0	942	0	0	1691	1707	931	1680	1666	576
Stage 1	-	-	-	-	-	-	1041	1041	-	614	614	-
Stage 2	-	-	-	-	-	-	650	666	-	1066	1052	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	964	-	-	736	-	-	75	92	326	76	98	521
Stage 1	-	-	-	-	-	-	280	310	-	483	486	-
Stage 2	-	-	-	-	-	-	461	460	-	271	306	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	964	-	-	736	-	-	67	84	326	63	90	521
Mov Cap-2 Maneuver	-	-	-	-	-	-	67	84	-	63	90	-
Stage 1	-	-	-	-	-	-	264	292	-	455	473	-
Stage 2	-	-	-	-	-	-	432	448	-	225	289	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			30.6			114		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	67	326	964	-	-	736	-	-	63	416		
HCM Lane V/C Ratio	0.189	0.119	0.057	-	-	0.026	-	-	0.752	0.048		
HCM Control Delay (s)	70.8	17.5	9	-	-	10	-	-	156.2	14.1		
HCM Lane LOS	F	C	A	-	-	B	-	-	F	B		
HCM 95th %tile Q(veh)	0.6	0.4	0.2	-	-	0.1	-	-	3.3	0.2		

Intersection						
Int Delay, s/veh	5.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	165	798	493	47	56	110
Future Vol, veh/h	165	798	493	47	56	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	174	840	519	49	59	116
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	568	0	-	0	1707	519
Stage 1	-	-	-	-	519	-
Stage 2	-	-	-	-	1188	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1014	-	-	-	101	561
Stage 1	-	-	-	-	601	-
Stage 2	-	-	-	-	292	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1014	-	-	-	84	561
Mov Cap-2 Maneuver	-	-	-	-	84	-
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	292	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		47.5		
HCM LOS				E		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1014	-	-	-	84	561
HCM Lane V/C Ratio	0.171	-	-	-	0.702	0.206
HCM Control Delay (s)	9.3	-	-	-	115.1	13.1
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.6	-	-	-	3.4	0.8

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	47	549	4	7	656	72	0	0	9	74	0	21
Future Vol, veh/h	47	549	4	7	656	72	0	0	9	74	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	49	578	4	7	691	76	0	0	9	78	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	767	0	0	582	0	0	-	-	291	1092	1385	346
Stage 1	-	-	-	-	-	-	-	-	-	705	705	-
Stage 2	-	-	-	-	-	-	-	-	-	387	680	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	856	-	-	1002	-	-	0	0	712	172	145	656
Stage 1	-	-	-	-	-	-	0	0	-	398	442	-
Stage 2	-	-	-	-	-	-	0	0	-	614	454	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	856	-	-	1002	-	-	-	-	712	162	136	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	162	136	-
Stage 1	-	-	-	-	-	-	-	-	-	375	439	-
Stage 2	-	-	-	-	-	-	-	-	-	571	428	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	10.1	41.8
HCM LOS			B	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	712	856	-	-	1002	-	-	194
HCM Lane V/C Ratio	0.013	0.058	-	-	0.007	-	-	0.515
HCM Control Delay (s)	10.1	9.5	-	-	8.6	-	-	41.8
HCM Lane LOS	B	A	-	-	A	-	-	E
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	2.6

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	670	56	40	513	1	47	0	21	7	1	2
Future Vol, veh/h	13	670	56	40	513	1	47	0	21	7	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	705	59	42	540	1	49	0	22	7	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	541	0	0	764	0	0	1118	1388	382	1005	1416	270
Stage 1	-	-	-	-	-	-	763	763	-	624	624	-
Stage 2	-	-	-	-	-	-	355	625	-	381	792	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1038	-	-	858	-	-	164	144	622	199	139	734
Stage 1	-	-	-	-	-	-	367	416	-	445	481	-
Stage 2	-	-	-	-	-	-	641	480	-	619	404	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1038	-	-	858	-	-	155	135	622	183	131	734
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	135	-	183	131	-
Stage 1	-	-	-	-	-	-	362	411	-	439	457	-
Stage 2	-	-	-	-	-	-	606	456	-	589	399	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	32.3	23.4
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	202	1038	-	-	858	-	-	206
HCM Lane V/C Ratio	0.354	0.013	-	-	0.049	-	-	0.051
HCM Control Delay (s)	32.3	8.5	-	-	9.4	-	-	23.4
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.5	0	-	-	0.2	-	-	0.2

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	844	14	12	505	5	10	0	4	4	0	3
Future Vol, veh/h	9	844	14	12	505	5	10	0	4	4	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	888	15	13	532	5	11	0	4	4	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	537	0	0	903	0	0	1206	1477	452	1020	1479	266
Stage 1	-	-	-	-	-	-	914	914	-	558	558	-
Stage 2	-	-	-	-	-	-	292	563	-	462	921	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1041	-	-	761	-	-	142	127	560	194	127	738
Stage 1	-	-	-	-	-	-	298	355	-	487	515	-
Stage 2	-	-	-	-	-	-	697	512	-	554	352	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1041	-	-	761	-	-	139	124	560	189	124	738
Mov Cap-2 Maneuver	-	-	-	-	-	-	139	124	-	189	124	-
Stage 1	-	-	-	-	-	-	295	352	-	483	506	-
Stage 2	-	-	-	-	-	-	682	503	-	545	349	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	27.2	18.4
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	177	1041	-	-	761	-	-	277
HCM Lane V/C Ratio	0.083	0.009	-	-	0.017	-	-	0.027
HCM Control Delay (s)	27.2	8.5	-	-	9.8	-	-	18.4
HCM Lane LOS	D	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.3	0	-	-	0.1	-	-	0.1

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	834	0	0	486	16	0	0	0	20	0	30
Future Vol, veh/h	25	834	0	0	486	16	0	0	0	20	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	26	878	0	0	512	17	0	0	0	21	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	512	0	0	878	0	0	1442	1442	878	1442	1442	-
Stage 1	-	-	-	-	-	-	930	930	-	512	512	-
Stage 2	-	-	-	-	-	-	512	512	-	930	930	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1064	-	-	778	-	0	111	134	350	111	134	0
Stage 1	-	-	-	-	-	0	323	349	-	548	540	0
Stage 2	-	-	-	-	-	0	548	540	-	323	349	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1064	-	-	778	-	-	109	131	350	109	131	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	131	-	109	131	-
Stage 1	-	-	-	-	-	-	315	341	-	535	540	-
Stage 2	-	-	-	-	-	-	548	540	-	315	341	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	0	45.8
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1064	-	-	778	-	109	-
HCM Lane V/C Ratio	-	0.025	-	-	-	-	0.193	-
HCM Control Delay (s)	0	8.5	-	-	0	-	45.8	0
HCM Lane LOS	A	A	-	-	A	-	E	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.7	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	836	491	16	13	9
Future Vol, veh/h	10	836	491	16	13	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	880	517	17	14	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	534	0	-	0	1419	517
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	902	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1044	-	-	-	152	562
Stage 1	-	-	-	-	603	-
Stage 2	-	-	-	-	399	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1044	-	-	-	150	562
Mov Cap-2 Maneuver	-	-	-	-	150	-
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	399	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		23.3		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1044	-	-	-	150	562
HCM Lane V/C Ratio	0.01	-	-	-	0.091	0.017
HCM Control Delay (s)	8.5	-	-	-	31.4	11.5
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3	0.1

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	787	4	21	466	41	14	2	34	45	0	27
Future Vol, veh/h	36	787	4	21	466	41	14	2	34	45	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	38	828	4	22	491	43	15	2	36	47	0	28
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	534	0	0	832	0	0	1475	1482	828	1460	1443	491
Stage 1	-	-	-	-	-	-	904	904	-	535	535	-
Stage 2	-	-	-	-	-	-	571	578	-	925	908	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1044	-	-	809	-	-	106	126	374	108	133	582
Stage 1	-	-	-	-	-	-	334	358	-	533	527	-
Stage 2	-	-	-	-	-	-	509	504	-	325	357	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1044	-	-	809	-	-	96	118	374	92	125	582
Mov Cap-2 Maneuver	-	-	-	-	-	-	96	118	-	92	125	-
Stage 1	-	-	-	-	-	-	322	345	-	514	513	-
Stage 2	-	-	-	-	-	-	471	490	-	281	344	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.4			26.2			54.2		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	96	334	1044	-	-	809	-	-	92	582		
HCM Lane V/C Ratio	0.154	0.113	0.036	-	-	0.027	-	-	0.515	0.049		
HCM Control Delay (s)	49.2	17.2	8.6	-	-	9.6	-	-	79.8	11.5		
HCM Lane LOS	E	C	A	-	-	A	-	-	F	B		
HCM 95th %tile Q(veh)	0.5	0.4	0.1	-	-	0.1	-	-	2.3	0.2		

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	88	781	462	49	41	72
Future Vol, veh/h	88	781	462	49	41	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	93	822	486	52	43	76
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	538	0	-	0	1494	486
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	1008	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1040	-	-	-	137	585
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	356	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1040	-	-	-	125	585
Mov Cap-2 Maneuver	-	-	-	-	125	-
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	356	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		25.2		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1040	-	-	-	125	585
HCM Lane V/C Ratio	0.089	-	-	-	0.345	0.13
HCM Control Delay (s)	8.8	-	-	-	48.3	12.1
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1.4	0.4

APPENDIX B-3

EXISTING WITH PROJECT WITH MITIGATION CONDITIONS

HCM 6th Signalized Intersection Summary
1: Via Rivera & Hawthorne Blvd

Year 2018 Existing with Project Mitigation Conditions
Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	801	4	31	496	135	0	0	3	108	0	74
Future Volume (veh/h)	58	801	4	31	496	135	0	0	3	108	0	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	61	843	4	33	522	142	0	0	3	114	0	78
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	622	2712	13	515	2657	1185	0	0	237	190	6	90
Arrive On Green	0.74	0.74	0.74	0.74	0.74	0.74	0.00	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	784	3684	17	661	3610	1610	0	0	1610	857	41	614
Grp Volume(v), veh/h	61	413	434	33	522	142	0	0	3	192	0	0
Grp Sat Flow(s),veh/h/ln	784	1805	1897	661	1805	1610	0	0	1610	1513	0	0
Q Serve(g_s), s	2.3	7.0	7.0	1.6	4.0	2.3	0.0	0.0	0.1	10.6	0.0	0.0
Cycle Q Clear(g_c), s	6.4	7.0	7.0	8.7	4.0	2.3	0.0	0.0	0.1	11.1	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.59		0.41
Lane Grp Cap(c), veh/h	622	1329	1396	515	2657	1185	0	0	237	286	0	0
V/C Ratio(X)	0.10	0.31	0.31	0.06	0.20	0.12	0.00	0.00	0.01	0.67	0.00	0.00
Avail Cap(c_a), veh/h	622	1329	1396	515	2657	1185	0	0	519	549	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.6	4.1	4.1	5.5	3.7	3.4	0.0	0.0	32.8	37.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.6	0.6	0.2	0.2	0.2	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	3.3	3.5	0.4	1.8	1.0	0.0	0.0	0.1	7.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.0	4.7	4.6	5.8	3.8	3.6	0.0	0.0	32.8	38.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	C	D	A	A
Approach Vol, veh/h		908			697			3			192	
Approach Delay, s/veh		4.7			3.9			32.8			38.4	
Approach LOS		A			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		72.2		17.8		72.2		17.8				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		50.5		29.0		50.5		29.0				
Max Q Clear Time (g_c+I1), s		9.0		13.1		10.7		2.1				
Green Ext Time (p_c), s		0.7		0.2		0.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				8.0								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	404	17	21	981	8	86	0	38	0	0	0
Future Vol, veh/h	5	404	17	21	981	8	86	0	38	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	425	18	22	1033	8	91	0	40	0	0	0
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1041	0	0	443	0	0	1005	1529	222	1300	1530	517
Stage 1	-	-	-	-	-	-	444	444	-	1077	1077	-
Stage 2	-	-	-	-	-	-	561	1085	-	223	453	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	676	-	-	1128	-	-	199	118	788	121	118	509
Stage 1	-	-	-	-	-	-	568	579	-	237	298	-
Stage 2	-	-	-	-	-	-	485	295	-	765	573	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	676	-	-	1128	-	-	191	111	788	110	111	509
Mov Cap-2 Maneuver	-	-	-	-	-	-	316	212	-	195	214	-
Stage 1	-	-	-	-	-	-	562	573	-	235	284	-
Stage 2	-	-	-	-	-	-	463	281	-	719	567	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.4			19			0		
HCM LOS							C			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	387	676	-	-	1128	-	-	-				
HCM Lane V/C Ratio	0.337	0.008	-	-	0.02	-	-	-				
HCM Control Delay (s)	19	10.4	0.1	-	8.3	0.2	-	0				
HCM Lane LOS	C	B	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	1.5	0	-	-	0.1	-	-	-				

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	395	2	1	1025	15	0	0	0	13	0	24
Future Vol, veh/h	16	395	2	1	1025	15	0	0	0	13	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	-	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	17	416	2	1	1079	16	0	0	0	14	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1079	0	0	418	0	0	1532	1532	417	1532	1533	-
Stage 1	-	-	-	-	-	-	451	451	-	1081	1081	-
Stage 2	-	-	-	-	-	-	1081	1081	-	451	452	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	654	-	-	1152	-	0	96	118	640	96	118	0
Stage 1	-	-	-	-	-	0	592	574	-	266	296	0
Stage 2	-	-	-	-	-	0	266	296	-	592	574	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	654	-	-	1152	-	-	94	115	640	94	115	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	94	115	-	198	222	-
Stage 1	-	-	-	-	-	-	577	559	-	259	295	-
Stage 2	-	-	-	-	-	-	265	295	-	577	559	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	24.5
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	654	-	-	1152	-	198	-
HCM Lane V/C Ratio	-	0.026	-	-	0.001	-	0.069	-
HCM Control Delay (s)	0	10.7	-	-	8.1	0	24.5	0
HCM Lane LOS	A	B	-	-	A	A	C	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.2	-

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	452	4	24	949	40	6	0	14	46	1	24
Future Vol, veh/h	11	452	4	24	949	40	6	0	14	46	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	145	-	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	476	4	25	999	42	6	0	15	48	1	25

Major/Minor	Major1			Major2			Minor1		Minor2			
Conflicting Flow All	1041	0	0	480	0	0	1583	1591	476	1559	1553	999
Stage 1	-	-	-	-	-	-	500	500	-	1049	1049	-
Stage 2	-	-	-	-	-	-	1083	1091	-	510	504	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	676	-	-	1093	-	-	89	108	593	92	114	298
Stage 1	-	-	-	-	-	-	557	546	-	277	307	-
Stage 2	-	-	-	-	-	-	265	293	-	550	544	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	676	-	-	1093	-	-	76	100	593	84	105	298
Mov Cap-2 Maneuver	-	-	-	-	-	-	168	200	-	194	211	-
Stage 1	-	-	-	-	-	-	544	533	-	270	290	-
Stage 2	-	-	-	-	-	-	228	277	-	523	531	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.2	16	25.7
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	168	593	676	-	-	1093	-	-	194	293
HCM Lane V/C Ratio	0.038	0.025	0.017	-	-	0.023	-	-	0.25	0.09
HCM Control Delay (s)	27.3	11.2	10.4	0	-	8.4	0	-	29.6	18.5
HCM Lane LOS	D	B	B	A	-	A	A	-	D	C
HCM 95th %tile Q(veh)	0.1	0.1	0.1	-	-	0.1	-	-	0.9	0.3

HCM 6th Signalized Intersection Summary
1: Via Rivera & Hawthorne Blvd

Year 2018 Existing with Project Mitigation Conditions
Weekday School PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	756	2	25	802	107	0	0	10	96	1	59
Future Volume (veh/h)	45	756	2	25	802	107	0	0	10	96	1	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	47	796	2	26	844	113	0	0	11	101	1	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	485	2785	7	555	2722	1214	0	0	208	178	7	73
Arrive On Green	0.75	0.75	0.75	0.75	0.75	0.75	0.00	0.00	0.13	0.13	0.13	0.13
Sat Flow, veh/h	596	3694	9	692	3610	1610	0	0	1610	877	56	567
Grp Volume(v), veh/h	47	389	409	26	844	113	0	0	11	164	0	0
Grp Sat Flow(s),veh/h/ln	596	1805	1898	692	1805	1610	0	0	1610	1499	0	0
Q Serve(g_s), s	2.5	6.1	6.1	1.1	6.8	1.7	0.0	0.0	0.5	9.1	0.0	0.0
Cycle Q Clear(g_c), s	9.2	6.1	6.1	7.2	6.8	1.7	0.0	0.0	0.5	9.6	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		1.00	0.62		0.38
Lane Grp Cap(c), veh/h	485	1361	1431	555	2722	1214	0	0	208	259	0	0
V/C Ratio(X)	0.10	0.29	0.29	0.05	0.31	0.09	0.00	0.00	0.05	0.63	0.00	0.00
Avail Cap(c_a), veh/h	485	1361	1431	555	2722	1214	0	0	519	546	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.0	3.5	3.5	4.6	3.6	2.9	0.0	0.0	34.3	38.3	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.5	0.5	0.2	0.3	0.2	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.5	2.7	2.8	0.3	2.8	0.7	0.0	0.0	0.4	6.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	4.0	4.0	4.8	3.9	3.1	0.0	0.0	34.4	39.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	C	D	A	A
Approach Vol, veh/h		845			983			11			164	
Approach Delay, s/veh		4.1			3.8			34.4			39.2	
Approach LOS		A			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		73.9		16.1		73.9		16.1				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		50.5		29.0		50.5		29.0				
Max Q Clear Time (g_c+I1), s		11.2		11.6		9.2		2.5				
Green Ext Time (p_c), s		0.7		0.2		0.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				7.0								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕	↗		↕↕			↕↕	
Traffic Vol, veh/h	10	941	53	34	516	4	50	0	26	5	0	1
Future Vol, veh/h	10	941	53	34	516	4	50	0	26	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	991	56	36	543	4	53	0	27	5	0	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	547	0	0	1047	0	0	1385	1660	524	1133	1684	272
Stage 1	-	-	-	-	-	-	1041	1041	-	615	615	-
Stage 2	-	-	-	-	-	-	344	619	-	518	1069	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1033	-	-	672	-	-	105	98	503	160	95	732
Stage 1	-	-	-	-	-	-	250	310	-	450	485	-
Stage 2	-	-	-	-	-	-	650	483	-	514	300	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1033	-	-	672	-	-	97	88	503	140	85	732
Mov Cap-2 Maneuver	-	-	-	-	-	-	192	201	-	264	184	-
Stage 1	-	-	-	-	-	-	244	302	-	438	448	-
Stage 2	-	-	-	-	-	-	599	446	-	473	292	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1			26.8			17.5		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	244	1033	-	-	672	-	-	295				
HCM Lane V/C Ratio	0.328	0.01	-	-	0.053	-	-	0.021				
HCM Control Delay (s)	26.8	8.5	0.1	-	10.7	0.4	-	17.5				
HCM Lane LOS	D	A	A	-	B	A	-	C				
HCM 95th %tile Q(veh)	1.4	0	-	-	0.2	-	-	0.1				

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	909	0	0	519	18	0	0	0	17	0	24
Future Vol, veh/h	38	909	0	0	519	18	0	0	0	17	0	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	-	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	40	957	0	0	546	19	0	0	0	18	0	25
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	546	0	0	957	0	0	1583	1583	957	1583	1583	-
Stage 1	-	-	-	-	-	-	1037	1037	-	546	546	-
Stage 2	-	-	-	-	-	-	546	546	-	1037	1037	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1033	-	-	727	-	0	89	110	315	89	110	0
Stage 1	-	-	-	-	-	0	282	311	-	526	521	0
Stage 2	-	-	-	-	-	0	526	521	-	282	311	0
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1033	-	-	727	-	-	86	106	315	86	106	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	106	-	196	217	-
Stage 1	-	-	-	-	-	-	271	299	-	505	521	-
Stage 2	-	-	-	-	-	-	526	521	-	271	299	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0			0			25.2		
HCM LOS							A			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2				
Capacity (veh/h)	-	1033	-	-	727	-	196	-				
HCM Lane V/C Ratio	-	0.039	-	-	-	-	0.091	-				
HCM Control Delay (s)	0	8.6	-	-	0	-	25.2	0				
HCM Lane LOS	A	A	-	-	A	-	D	A				
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.3	-				

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗	↘		↗	↘	↘	↗		↘	↗	
Traffic Vol, veh/h	52	884	10	18	547	49	12	0	37	45	1	18
Future Vol, veh/h	52	884	10	18	547	49	12	0	37	45	1	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	145	-	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	55	931	11	19	576	52	13	0	39	47	1	19
Major/Minor	Major1			Major2			Minor1		Minor2			
Conflicting Flow All	628	0	0	942	0	0	1691	1707	931	1680	1666	576
Stage 1	-	-	-	-	-	-	1041	1041	-	614	614	-
Stage 2	-	-	-	-	-	-	650	666	-	1066	1052	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	964	-	-	736	-	-	75	92	326	76	98	521
Stage 1	-	-	-	-	-	-	280	310	-	483	486	-
Stage 2	-	-	-	-	-	-	461	460	-	271	306	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	964	-	-	736	-	-	63	78	326	59	83	521
Mov Cap-2 Maneuver	-	-	-	-	-	-	162	180	-	142	182	-
Stage 1	-	-	-	-	-	-	246	273	-	425	467	-
Stage 2	-	-	-	-	-	-	426	442	-	210	269	-
Approach	EB			WB			NB		SB			
HCM Control Delay, s	0.5			0.3			20.3		33.7			
HCM LOS							C		D			
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	162	326	964	-	-	736	-	-	142	474		
HCM Lane V/C Ratio	0.078	0.119	0.057	-	-	0.026	-	-	0.334	0.042		
HCM Control Delay (s)	29.1	17.5	9	0	-	10	0	-	42.5	12.9		
HCM Lane LOS	D	C	A	A	-	B	A	-	E	B		
HCM 95th %tile Q(veh)	0.2	0.4	0.2	-	-	0.1	-	-	1.3	0.1		

HCM 6th Signalized Intersection Summary
1: Via Rivera & Hawthorne Blvd

Year 2018 Existing with Project Mitigation Conditions
Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	549	4	7	656	72	0	0	9	74	0	21
Future Volume (veh/h)	47	549	4	7	656	72	0	0	9	74	0	21
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	49	578	4	7	691	76	0	0	9	78	0	22
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	612	2924	20	721	2873	1281	0	0	141	165	2	27
Arrive On Green	0.80	0.80	0.80	0.80	0.80	0.80	0.00	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	712	3675	25	846	3610	1610	0	0	1610	1076	23	310
Grp Volume(v), veh/h	49	284	298	7	691	76	0	0	9	100	0	0
Grp Sat Flow(s),veh/h/ln	712	1805	1895	846	1805	1610	0	0	1610	1409	0	0
Q Serve(g_s), s	1.7	3.4	3.4	0.2	4.4	0.9	0.0	0.0	0.5	5.9	0.0	0.0
Cycle Q Clear(g_c), s	6.0	3.4	3.4	3.6	4.4	0.9	0.0	0.0	0.5	6.3	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.78		0.22
Lane Grp Cap(c), veh/h	612	1436	1508	721	2873	1281	0	0	141	195	0	0
V/C Ratio(X)	0.08	0.20	0.20	0.01	0.24	0.06	0.00	0.00	0.06	0.51	0.00	0.00
Avail Cap(c_a), veh/h	612	1436	1508	721	2873	1281	0	0	519	538	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.1	2.2	2.2	2.7	2.3	2.0	0.0	0.0	37.7	40.5	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.3	0.0	0.2	0.1	0.0	0.0	0.1	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	1.1	1.2	0.0	1.3	0.3	0.0	0.0	0.3	4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.3	2.5	2.5	2.7	2.5	2.1	0.0	0.0	37.7	41.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	D	D	A	A
Approach Vol, veh/h		631			774			9			100	
Approach Delay, s/veh		2.6			2.5			37.7			41.3	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		77.6		12.4		77.6		12.4				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		50.5		29.0		50.5		29.0				
Max Q Clear Time (g_c+I1), s		8.0		8.3		6.4		2.5				
Green Ext Time (p_c), s		0.5		0.1		0.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				5.3								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	670	56	40	513	1	47	0	21	7	1	2
Future Vol, veh/h	13	670	56	40	513	1	47	0	21	7	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	705	59	42	540	1	49	0	22	7	1	2
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	541	0	0	764	0	0	1118	1388	382	1005	1416	270
Stage 1	-	-	-	-	-	-	763	763	-	624	624	-
Stage 2	-	-	-	-	-	-	355	625	-	381	792	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1038	-	-	858	-	-	164	144	622	199	139	734
Stage 1	-	-	-	-	-	-	367	416	-	445	481	-
Stage 2	-	-	-	-	-	-	641	480	-	619	404	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1038	-	-	858	-	-	152	131	622	178	126	734
Mov Cap-2 Maneuver	-	-	-	-	-	-	266	251	-	300	236	-
Stage 1	-	-	-	-	-	-	358	406	-	434	447	-
Stage 2	-	-	-	-	-	-	593	446	-	583	394	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.2		1			19.3			16.3			
HCM LOS						C			C			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	323	1038	-	-	858	-	-	330				
HCM Lane V/C Ratio	0.222	0.013	-	-	0.049	-	-	0.032				
HCM Control Delay (s)	19.3	8.5	0.1	-	9.4	0.3	-	16.3				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.8	0	-	-	0.2	-	-	0.1				

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	25	834	0	0	486	16	0	0	0	20	0	30
Future Vol, veh/h	25	834	0	0	486	16	0	0	0	20	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	-	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	26	878	0	0	512	17	0	0	0	21	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	512	0	0	878	0	0	1442	1442	878	1442	1442	-
Stage 1	-	-	-	-	-	-	930	930	-	512	512	-
Stage 2	-	-	-	-	-	-	512	512	-	930	930	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1064	-	-	778	-	0	111	134	350	111	134	0
Stage 1	-	-	-	-	-	0	323	349	-	548	540	0
Stage 2	-	-	-	-	-	0	548	540	-	323	349	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1064	-	-	778	-	-	109	131	350	109	131	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	131	-	226	246	-
Stage 1	-	-	-	-	-	-	315	341	-	535	540	-
Stage 2	-	-	-	-	-	-	548	540	-	315	341	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	0	22.6
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1064	-	-	778	-	226	-
HCM Lane V/C Ratio	-	0.025	-	-	-	-	0.093	-
HCM Control Delay (s)	0	8.5	-	-	0	-	22.6	0
HCM Lane LOS	A	A	-	-	A	-	C	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.3	-

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	36	787	4	21	466	41	14	2	34	45	0	27
Future Vol, veh/h	36	787	4	21	466	41	14	2	34	45	0	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	145	-	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	38	828	4	22	491	43	15	2	36	47	0	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	534	0	0	832	0	0	1475	1482	828	1460	1443	491
Stage 1	-	-	-	-	-	-	904	904	-	535	535	-
Stage 2	-	-	-	-	-	-	571	578	-	925	908	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1044	-	-	809	-	-	106	126	374	108	133	582
Stage 1	-	-	-	-	-	-	334	358	-	533	527	-
Stage 2	-	-	-	-	-	-	509	504	-	325	357	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1044	-	-	809	-	-	93	113	374	89	119	582
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	224	-	187	226	-
Stage 1	-	-	-	-	-	-	311	334	-	497	506	-
Stage 2	-	-	-	-	-	-	465	484	-	272	333	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	18.3	23.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	205	361	1044	-	-	809	-	-	187	582
HCM Lane V/C Ratio	0.072	0.105	0.036	-	-	0.027	-	-	0.253	0.049
HCM Control Delay (s)	23.9	16.1	8.6	0	-	9.6	0	-	30.7	11.5
HCM Lane LOS	C	C	A	A	-	A	A	-	D	B
HCM 95th %tile Q(veh)	0.2	0.3	0.1	-	-	0.1	-	-	1	0.2

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	88	781	462	49	41	72
Future Vol, veh/h	88	781	462	49	41	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	93	822	486	52	43	76
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	538	0	-	0	1494	486
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	1008	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1040	-	-	-	137	585
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	356	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1040	-	-	-	125	585
Mov Cap-2 Maneuver	-	-	-	-	210	-
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	356	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		17.3		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1040	-	-	-	210	585
HCM Lane V/C Ratio	0.089	-	-	-	0.206	0.13
HCM Control Delay (s)	8.8	-	-	-	26.5	12.1
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.7	0.4

APPENDIX B-4

YEAR 2030 FUTURE PRE-PROJECT CONDITIONS

Intersection												
Int Delay, s/veh	17.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	62	887	4	33	559	145	0	0	3	116	0	80
Future Vol, veh/h	62	887	4	33	559	145	0	0	3	116	0	80
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	65	934	4	35	588	153	0	0	3	122	0	84
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	741	0	0	938	0	0	-	-	469	1255	1726	294
Stage 1	-	-	-	-	-	-	-	-	-	658	658	-
Stage 2	-	-	-	-	-	-	-	-	-	597	1068	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	875	-	-	739	-	-	0	0	546	130	90	708
Stage 1	-	-	-	-	-	-	0	0	-	424	464	-
Stage 2	-	-	-	-	-	-	0	0	-	461	301	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	875	-	-	739	-	-	-	-	546	~ 118	79	708
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ 118	79	-
Stage 1	-	-	-	-	-	-	-	-	-	393	442	-
Stage 2	-	-	-	-	-	-	-	-	-	424	279	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.5			11.6			167.2		
HCM LOS							B			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	546	875	-	-	739	-	-	179				
HCM Lane V/C Ratio	0.006	0.075	-	-	0.047	-	-	1.153				
HCM Control Delay (s)	11.6	9.4	-	-	10.1	-	-	167.2				
HCM Lane LOS	B	A	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-	-	10.7				
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	452	18	23	1092	9	92	0	41	0	0	0
Future Vol, veh/h	5	452	18	23	1092	9	92	0	41	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	476	19	24	1149	9	97	0	43	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1158	0	0	495	0	0	1119	1702	248	1445	1702	575
Stage 1	-	-	-	-	-	-	496	496	-	1197	1197	-
Stage 2	-	-	-	-	-	-	623	1206	-	248	505	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	611	-	-	1079	-	-	164	93	758	94	93	466
Stage 1	-	-	-	-	-	-	529	549	-	200	261	-
Stage 2	-	-	-	-	-	-	445	259	-	740	544	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	611	-	-	1079	-	-	160	90	758	87	90	466
Mov Cap-2 Maneuver	-	-	-	-	-	-	160	90	-	87	90	-
Stage 1	-	-	-	-	-	-	525	545	-	198	255	-
Stage 2	-	-	-	-	-	-	435	253	-	692	540	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	50.4	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	211	611	-	-	1079	-	-	-
HCM Lane V/C Ratio	0.664	0.009	-	-	0.022	-	-	-
HCM Control Delay (s)	50.4	10.9	-	-	8.4	-	-	0
HCM Lane LOS	F	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	4.1	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	460	11	16	1145	2	20	0	9	3	0	6
Future Vol, veh/h	26	460	11	16	1145	2	20	0	9	3	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	27	484	12	17	1205	2	21	0	9	3	0	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1207	0	0	496	0	0	1181	1785	248	1535	1789	603
Stage 1	-	-	-	-	-	-	544	544	-	1239	1239	-
Stage 2	-	-	-	-	-	-	637	1241	-	296	550	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	585	-	-	1078	-	-	148	82	758	81	82	447
Stage 1	-	-	-	-	-	-	496	522	-	189	250	-
Stage 2	-	-	-	-	-	-	437	249	-	694	519	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	585	-	-	1078	-	-	139	77	758	76	77	447
Mov Cap-2 Maneuver	-	-	-	-	-	-	139	77	-	76	77	-
Stage 1	-	-	-	-	-	-	473	498	-	180	246	-
Stage 2	-	-	-	-	-	-	424	245	-	654	495	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.1			28.1			27.4		
HCM LOS							D			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	186	585	-	-	1078	-	-	170				
HCM Lane V/C Ratio	0.164	0.047	-	-	0.016	-	-	0.056				
HCM Control Delay (s)	28.1	11.5	-	-	8.4	-	-	27.4				
HCM Lane LOS	D	B	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.2				

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	442	2	1	1124	16	0	0	0	12	0	26
Future Vol, veh/h	17	442	2	1	1124	16	0	0	0	12	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	18	465	2	1	1183	17	0	0	0	13	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1183	0	0	467	0	0	1687	1687	466	1687	1688	-
Stage 1	-	-	-	-	-	-	502	502	-	1185	1185	-
Stage 2	-	-	-	-	-	-	1185	1185	-	502	503	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	597	-	-	1105	-	0	75	95	601	75	95	0
Stage 1	-	-	-	-	-	0	555	545	-	233	265	0
Stage 2	-	-	-	-	-	0	233	265	-	555	545	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	597	-	-	1105	-	-	73	92	601	73	92	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	73	92	-	73	92	-
Stage 1	-	-	-	-	-	-	538	529	-	226	265	-
Stage 2	-	-	-	-	-	-	233	265	-	538	529	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	64.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	597	-	-	1105	-	73	-
HCM Lane V/C Ratio	-	0.03	-	-	0.001	-	0.173	-
HCM Control Delay (s)	0	11.2	-	-	8.3	-	64.4	0
HCM Lane LOS	A	B	-	-	A	-	F	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.6	-

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	443	1135	13	17	9
Future Vol, veh/h	6	443	1135	13	17	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	6	466	1195	14	18	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1209	0	-	0	1673	1195
Stage 1	-	-	-	-	1195	-
Stage 2	-	-	-	-	478	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	584	-	-	-	106	229
Stage 1	-	-	-	-	290	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	584	-	-	-	105	229
Mov Cap-2 Maneuver	-	-	-	-	105	-
Stage 1	-	-	-	-	287	-
Stage 2	-	-	-	-	628	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		37.6		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	584	-	-	-	105	229
HCM Lane V/C Ratio	0.011	-	-	-	0.17	0.041
HCM Control Delay (s)	11.2	-	-	-	46.2	21.4
HCM Lane LOS	B	-	-	-	E	C
HCM 95th %tile Q(veh)	0	-	-	-	0.6	0.1

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	496	4	26	1049	43	6	0	15	49	1	26
Future Vol, veh/h	12	496	4	26	1049	43	6	0	15	49	1	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	522	4	27	1104	45	6	0	16	52	1	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1149	0	0	526	0	0	1743	1751	522	1716	1710	1104
Stage 1	-	-	-	-	-	-	548	548	-	1158	1158	-
Stage 2	-	-	-	-	-	-	1195	1203	-	558	552	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	615	-	-	1051	-	-	69	87	559	72	92	259
Stage 1	-	-	-	-	-	-	524	520	-	241	273	-
Stage 2	-	-	-	-	-	-	230	260	-	518	518	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	615	-	-	1051	-	-	59	83	559	67	88	259
Mov Cap-2 Maneuver	-	-	-	-	-	-	59	83	-	67	88	-
Stage 1	-	-	-	-	-	-	513	509	-	236	266	-
Stage 2	-	-	-	-	-	-	200	253	-	493	507	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			29.2			106.3		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	59	559	615	-	-	1051	-	-	67	242		
HCM Lane V/C Ratio	0.107	0.028	0.021	-	-	0.026	-	-	0.77	0.117		
HCM Control Delay (s)	73.2	11.6	11	-	-	8.5	-	-	152.9	21.8		
HCM Lane LOS	F	B	B	-	-	A	-	-	F	C		
HCM 95th %tile Q(veh)	0.3	0.1	0.1	-	-	0.1	-	-	3.5	0.4		

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	114	464	961	77	33	164
Future Vol, veh/h	114	464	961	77	33	164
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	120	488	1012	81	35	173
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1093	0	-	0	1740	1012
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	728	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	646	-	-	-	97	293
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	482	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	646	-	-	-	79	293
Mov Cap-2 Maneuver	-	-	-	-	79	-
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	482	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.3	0		41.7		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	646	-	-	-	79	293
HCM Lane V/C Ratio	0.186	-	-	-	0.44	0.589
HCM Control Delay (s)	11.8	-	-	-	82.3	33.5
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.7	-	-	-	1.8	3.5

Intersection												
Int Delay, s/veh	33.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	853	2	27	902	115	0	0	11	103	1	63
Future Vol, veh/h	48	853	2	27	902	115	0	0	11	103	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	51	898	2	28	949	121	0	0	12	108	1	66
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1070	0	0	900	0	0	-	-	450	1556	2007	475
Stage 1	-	-	-	-	-	-	-	-	-	1005	1005	-
Stage 2	-	-	-	-	-	-	-	-	-	551	1002	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	659	-	-	763	-	-	0	0	562	~ 78	60	541
Stage 1	-	-	-	-	-	-	0	0	-	263	322	-
Stage 2	-	-	-	-	-	-	0	0	-	491	323	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	659	-	-	763	-	-	-	-	562	~ 70	53	541
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ 70	53	-
Stage 1	-	-	-	-	-	-	-	-	-	243	310	-
Stage 2	-	-	-	-	-	-	-	-	-	444	298	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.6		0.3			11.5			\$ 419.5			
HCM LOS						B			F			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	562	659	-	-	763	-	-	104				
HCM Lane V/C Ratio	0.021	0.077	-	-	0.037	-	-	1.69				
HCM Control Delay (s)	11.5	10.9	-	-	9.9	-	-	\$ 419.5				
HCM Lane LOS	B	B	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-	-	13.8				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	1056	57	37	587	4	54	0	28	5	0	1
Future Vol, veh/h	11	1056	57	37	587	4	54	0	28	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	1112	60	39	618	4	57	0	29	5	0	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	622	0	0	1172	0	0	1553	1866	586	1276	1892	309
Stage 1	-	-	-	-	-	-	1166	1166	-	696	696	-
Stage 2	-	-	-	-	-	-	387	700	-	580	1196	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	969	-	-	603	-	-	78	73	459	126	71	693
Stage 1	-	-	-	-	-	-	209	270	-	403	446	-
Stage 2	-	-	-	-	-	-	614	444	-	472	262	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	969	-	-	603	-	-	73	67	459	111	66	693
Mov Cap-2 Maneuver	-	-	-	-	-	-	73	67	-	111	66	-
Stage 1	-	-	-	-	-	-	206	267	-	398	417	-
Stage 2	-	-	-	-	-	-	573	415	-	436	259	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.7			126.7			34.3		
HCM LOS							F			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	102	969	-	-	603	-	-	129				
HCM Lane V/C Ratio	0.846	0.012	-	-	0.065	-	-	0.049				
HCM Control Delay (s)	126.7	8.8	-	-	11.4	-	-	34.3				
HCM Lane LOS	F	A	-	-	B	-	-	D				
HCM 95th %tile Q(veh)	4.8	0	-	-	0.2	-	-	0.2				

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1046	23	4	609	8	10	0	3	4	0	9
Future Vol, veh/h	13	1046	23	4	609	8	10	0	3	4	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	1101	24	4	641	8	11	0	3	4	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	649	0	0	1125	0	0	1470	1798	563	1228	1802	321
Stage 1	-	-	-	-	-	-	1141	1141	-	649	649	-
Stage 2	-	-	-	-	-	-	329	657	-	579	1153	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	947	-	-	628	-	-	90	81	475	136	80	681
Stage 1	-	-	-	-	-	-	217	278	-	430	469	-
Stage 2	-	-	-	-	-	-	664	465	-	473	274	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	947	-	-	628	-	-	87	79	475	133	78	681
Mov Cap-2 Maneuver	-	-	-	-	-	-	87	79	-	133	78	-
Stage 1	-	-	-	-	-	-	214	274	-	424	466	-
Stage 2	-	-	-	-	-	-	651	462	-	463	270	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	43.5	17.6
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	107	947	-	-	628	-	-	300
HCM Lane V/C Ratio	0.128	0.014	-	-	0.007	-	-	0.046
HCM Control Delay (s)	43.5	8.9	-	-	10.8	-	-	17.6
HCM Lane LOS	E	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	41	1006	0	0	583	16	0	0	0	16	0	26
Future Vol, veh/h	41	1006	0	0	583	16	0	0	0	16	0	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	43	1059	0	0	614	17	0	0	0	17	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	614	0	0	1059	0	0	1759	1759	1059	1759	1759	-
Stage 1	-	-	-	-	-	-	1145	1145	-	614	614	-
Stage 2	-	-	-	-	-	-	614	614	-	1145	1145	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	975	-	-	665	-	0	67	86	275	67	86	0
Stage 1	-	-	-	-	-	0	245	277	-	483	486	0
Stage 2	-	-	-	-	-	0	483	486	-	245	277	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	975	-	-	665	-	-	65	82	275	65	82	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	65	82	-	65	82	-
Stage 1	-	-	-	-	-	-	234	265	-	462	486	-
Stage 2	-	-	-	-	-	-	483	486	-	234	265	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	78.7
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	975	-	-	665	-	65	-
HCM Lane V/C Ratio	-	0.044	-	-	-	-	0.259	-
HCM Control Delay (s)	0	8.9	-	-	0	-	78.7	0
HCM Lane LOS	A	A	-	-	A	-	F	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.9	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	1018	593	15	15	3
Future Vol, veh/h	9	1018	593	15	15	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	1072	624	16	16	3
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	640	0	-	0	1714	624
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	1090	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	954	-	-	-	100	489
Stage 1	-	-	-	-	538	-
Stage 2	-	-	-	-	325	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	954	-	-	-	99	489
Mov Cap-2 Maneuver	-	-	-	-	99	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	325	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		42.2		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	954	-	-	-	99	489
HCM Lane V/C Ratio	0.01	-	-	-	0.159	0.006
HCM Control Delay (s)	8.8	-	-	-	48.1	12.4
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5	0

Intersection												
Int Delay, s/veh	9.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	983	11	19	608	53	13	0	40	48	1	19
Future Vol, veh/h	56	983	11	19	608	53	13	0	40	48	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	59	1035	12	20	640	56	14	0	42	51	1	20
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	696	0	0	1047	0	0	1872	1889	1035	1860	1845	640
Stage 1	-	-	-	-	-	-	1153	1153	-	680	680	-
Stage 2	-	-	-	-	-	-	719	736	-	1180	1165	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	909	-	-	672	-	-	56	71	284	57	76	479
Stage 1	-	-	-	-	-	-	242	274	-	444	454	-
Stage 2	-	-	-	-	-	-	423	428	-	234	271	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	909	-	-	672	-	-	49	64	284	~ 45	69	479
Mov Cap-2 Maneuver	-	-	-	-	-	-	49	64	-	~ 45	69	-
Stage 1	-	-	-	-	-	-	226	256	-	415	440	-
Stage 2	-	-	-	-	-	-	392	415	-	186	253	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			40.7			227.3		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	49	284	909	-	-	672	-	-	45	369		
HCM Lane V/C Ratio	0.279	0.148	0.065	-	-	0.03	-	-	1.123	0.057		
HCM Control Delay (s)	104.8	19.9	9.2	-	-	10.5	-	-	\$ 315.6	15.3		
HCM Lane LOS	F	C	A	-	-	B	-	-	F	C		
HCM 95th %tile Q(veh)	1	0.5	0.2	-	-	0.1	-	-	4.7	0.2		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection						
Int Delay, s/veh	9.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	176	890	554	50	60	116
Future Vol, veh/h	176	890	554	50	60	116
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	185	937	583	53	63	122
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	636	0	-	0	1890	583
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	1307	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	957	-	-	-	78	516
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	256	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	957	-	-	-	~ 63	516
Mov Cap-2 Maneuver	-	-	-	-	~ 63	-
Stage 1	-	-	-	-	454	-
Stage 2	-	-	-	-	256	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		85.4		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	957	-	-	-	63	516
HCM Lane V/C Ratio	0.194	-	-	-	1.003	0.237
HCM Control Delay (s)	9.7	-	-	-	223.3	14.1
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.7	-	-	-	4.9	0.9
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	631	4	8	745	77	0	0	10	80	0	23
Future Vol, veh/h	50	631	4	8	745	77	0	0	10	80	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	53	664	4	8	784	81	0	0	11	84	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	865	0	0	668	0	0	-	-	334	1238	1574	392
Stage 1	-	-	-	-	-	-	-	-	-	800	800	-
Stage 2	-	-	-	-	-	-	-	-	-	438	774	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	787	-	-	931	-	-	0	0	668	134	111	613
Stage 1	-	-	-	-	-	-	0	0	-	349	400	-
Stage 2	-	-	-	-	-	-	0	0	-	573	411	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	787	-	-	931	-	-	-	-	668	124	103	613
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	124	103	-
Stage 1	-	-	-	-	-	-	-	-	-	326	396	-
Stage 2	-	-	-	-	-	-	-	-	-	526	383	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	10.5	73.7
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	668	787	-	-	931	-	-	151
HCM Lane V/C Ratio	0.016	0.067	-	-	0.009	-	-	0.718
HCM Control Delay (s)	10.5	9.9	-	-	8.9	-	-	73.7
HCM Lane LOS	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	4.2

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	765	60	43	584	1	50	0	23	8	1	2
Future Vol, veh/h	14	765	60	43	584	1	50	0	23	8	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	805	63	45	615	1	53	0	24	8	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	616	0	0	868	0	0	1265	1573	434	1138	1603	308
Stage 1	-	-	-	-	-	-	867	867	-	705	705	-
Stage 2	-	-	-	-	-	-	398	706	-	433	898	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	974	-	-	785	-	-	128	111	576	159	107	694
Stage 1	-	-	-	-	-	-	318	373	-	398	442	-
Stage 2	-	-	-	-	-	-	605	442	-	577	361	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	974	-	-	785	-	-	120	103	576	144	99	694
Mov Cap-2 Maneuver	-	-	-	-	-	-	120	103	-	144	99	-
Stage 1	-	-	-	-	-	-	313	367	-	392	417	-
Stage 2	-	-	-	-	-	-	567	417	-	544	356	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	46.7	29.2
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	160	974	-	-	785	-	-	160
HCM Lane V/C Ratio	0.48	0.015	-	-	0.058	-	-	0.072
HCM Control Delay (s)	46.7	8.8	-	-	9.9	-	-	29.2
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.3	0	-	-	0.2	-	-	0.2

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	952	15	13	575	5	11	0	4	4	0	3
Future Vol, veh/h	10	952	15	13	575	5	11	0	4	4	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	1002	16	14	605	5	12	0	4	4	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	610	0	0	1018	0	0	1363	1670	509	1156	1673	303
Stage 1	-	-	-	-	-	-	1032	1032	-	633	633	-
Stage 2	-	-	-	-	-	-	331	638	-	523	1040	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	979	-	-	689	-	-	109	97	515	154	97	699
Stage 1	-	-	-	-	-	-	253	313	-	439	476	-
Stage 2	-	-	-	-	-	-	662	474	-	510	310	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	979	-	-	689	-	-	106	94	515	149	94	699
Mov Cap-2 Maneuver	-	-	-	-	-	-	106	94	-	149	94	-
Stage 1	-	-	-	-	-	-	250	310	-	434	466	-
Stage 2	-	-	-	-	-	-	646	465	-	500	307	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	35.4	21.5
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	134	979	-	-	689	-	-	225
HCM Lane V/C Ratio	0.118	0.011	-	-	0.02	-	-	0.033
HCM Control Delay (s)	35.4	8.7	-	-	10.3	-	-	21.5
HCM Lane LOS	E	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	926	0	0	548	14	0	0	0	19	0	33
Future Vol, veh/h	27	926	0	0	548	14	0	0	0	19	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	28	975	0	0	577	15	0	0	0	20	0	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	577	0	0	975	0	0	1608	1608	975	1608	1608	-
Stage 1	-	-	-	-	-	-	1031	1031	-	577	577	-
Stage 2	-	-	-	-	-	-	577	577	-	1031	1031	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1006	-	-	716	-	0	85	106	308	85	106	0
Stage 1	-	-	-	-	-	0	284	313	-	506	505	0
Stage 2	-	-	-	-	-	0	506	505	-	284	313	0
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1006	-	-	716	-	-	83	103	308	83	103	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	83	103	-	83	103	-
Stage 1	-	-	-	-	-	-	276	304	-	492	505	-
Stage 2	-	-	-	-	-	-	506	505	-	276	304	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	0	61.6
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1006	-	-	716	-	83	-
HCM Lane V/C Ratio	-	0.028	-	-	-	-	0.241	-
HCM Control Delay (s)	0	8.7	-	-	0	-	61.6	0
HCM Lane LOS	A	A	-	-	A	-	F	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.9	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	933	554	16	13	5
Future Vol, veh/h	3	933	554	16	13	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	3	982	583	17	14	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	600	0	-	0	1571	583
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	988	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	987	-	-	-	123	516
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	364	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	987	-	-	-	123	516
Mov Cap-2 Maneuver	-	-	-	-	123	-
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	364	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		30.7		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	987	-	-	-	123	516
HCM Lane V/C Ratio	0.003	-	-	-	0.111	0.01
HCM Control Delay (s)	8.7	-	-	-	37.9	12
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	879	4	23	521	44	15	2	37	48	0	29
Future Vol, veh/h	39	879	4	23	521	44	15	2	37	48	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	41	925	4	24	548	46	16	2	39	51	0	31

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	594	0	0	929	0	0	1642	1649	925	1626	1607	548
Stage 1	-	-	-	-	-	-	1007	1007	-	596	596	-
Stage 2	-	-	-	-	-	-	635	642	-	1030	1011	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	992	-	-	744	-	-	81	100	329	83	106	540
Stage 1	-	-	-	-	-	-	293	321	-	494	495	-
Stage 2	-	-	-	-	-	-	470	472	-	284	320	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	992	-	-	744	-	-	72	93	329	68	98	540
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	93	-	68	98	-
Stage 1	-	-	-	-	-	-	281	308	-	474	479	-
Stage 2	-	-	-	-	-	-	429	457	-	238	307	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.4	33	95.1
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	72	291	992	-	-	744	-	-	68	540
HCM Lane V/C Ratio	0.219	0.141	0.041	-	-	0.033	-	-	0.743	0.057
HCM Control Delay (s)	68.5	19.4	8.8	-	-	10	-	-	145.2	12.1
HCM Lane LOS	F	C	A	-	-	B	-	-	F	B
HCM 95th %tile Q(veh)	0.8	0.5	0.1	-	-	0.1	-	-	3.4	0.2

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	93	872	521	53	44	75
Future Vol, veh/h	93	872	521	53	44	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	98	918	548	56	46	79
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	604	0	-	0	1662	548
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	1114	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	984	-	-	-	108	540
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	317	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	984	-	-	-	97	540
Mov Cap-2 Maneuver	-	-	-	-	97	-
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	317	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		34.8		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	984	-	-	-	97	540
HCM Lane V/C Ratio	0.099	-	-	-	0.477	0.146
HCM Control Delay (s)	9.1	-	-	-	72.2	12.8
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.3	-	-	-	2.1	0.5

APPENDIX B-5

YEAR 2030 FUTURE WITH PROJECT CONDITIONS

Intersection												
Int Delay, s/veh	18.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	62	893	4	33	561	145	0	0	3	116	0	80
Future Vol, veh/h	62	893	4	33	561	145	0	0	3	116	0	80
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	65	940	4	35	591	153	0	0	3	122	0	84
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	744	0	0	944	0	0	-	-	472	1261	1735	296
Stage 1	-	-	-	-	-	-	-	-	-	661	661	-
Stage 2	-	-	-	-	-	-	-	-	-	600	1074	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	873	-	-	735	-	-	0	0	544	129	89	706
Stage 1	-	-	-	-	-	-	0	0	-	423	463	-
Stage 2	-	-	-	-	-	-	0	0	-	459	299	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	873	-	-	735	-	-	-	-	544	~ 117	78	706
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ 117	78	-
Stage 1	-	-	-	-	-	-	-	-	-	392	441	-
Stage 2	-	-	-	-	-	-	-	-	-	422	277	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.5			11.7			172.4		
HCM LOS							B			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	544	873	-	-	735	-	-	177				
HCM Lane V/C Ratio	0.006	0.075	-	-	0.047	-	-	1.166				
HCM Control Delay (s)	11.7	9.5	-	-	10.1	-	-	172.4				
HCM Lane LOS	B	A	-	-	B	-	-	F				
HCM 95th %tile Q(veh)	0	0.2	-	-	0.1	-	-	10.8				
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	456	18	23	1103	9	92	0	41	0	0	0
Future Vol, veh/h	5	456	18	23	1103	9	92	0	41	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	480	19	24	1161	9	97	0	43	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1170	0	0	499	0	0	1129	1718	250	1459	1718	581
Stage 1	-	-	-	-	-	-	500	500	-	1209	1209	-
Stage 2	-	-	-	-	-	-	629	1218	-	250	509	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	604	-	-	1075	-	-	161	91	756	92	91	462
Stage 1	-	-	-	-	-	-	527	546	-	197	258	-
Stage 2	-	-	-	-	-	-	442	255	-	738	541	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	604	-	-	1075	-	-	157	88	756	85	88	462
Mov Cap-2 Maneuver	-	-	-	-	-	-	157	88	-	85	88	-
Stage 1	-	-	-	-	-	-	523	542	-	195	252	-
Stage 2	-	-	-	-	-	-	432	249	-	690	537	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	52	0
HCM LOS			F	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	208	604	-	-	1075	-	-	-
HCM Lane V/C Ratio	0.673	0.009	-	-	0.023	-	-	-
HCM Control Delay (s)	52	11	-	-	8.4	-	-	0
HCM Lane LOS	F	B	-	-	A	-	-	A
HCM 95th %tile Q(veh)	4.2	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	26	464	11	16	1156	2	20	0	9	3	0	6
Future Vol, veh/h	26	464	11	16	1156	2	20	0	9	3	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	27	488	12	17	1217	2	21	0	9	3	0	6
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1219	0	0	500	0	0	1191	1801	250	1549	1805	609
Stage 1	-	-	-	-	-	-	548	548	-	1251	1251	-
Stage 2	-	-	-	-	-	-	643	1253	-	298	554	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	579	-	-	1075	-	-	145	81	756	79	80	443
Stage 1	-	-	-	-	-	-	493	520	-	186	246	-
Stage 2	-	-	-	-	-	-	433	246	-	692	517	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	579	-	-	1075	-	-	136	76	756	74	75	443
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	76	-	74	75	-
Stage 1	-	-	-	-	-	-	470	496	-	177	242	-
Stage 2	-	-	-	-	-	-	420	242	-	651	493	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.1			28.7			28		
HCM LOS							D			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	182	579	-	-	1075	-	-	166				
HCM Lane V/C Ratio	0.168	0.047	-	-	0.016	-	-	0.057				
HCM Control Delay (s)	28.7	11.5	-	-	8.4	-	-	28				
HCM Lane LOS	D	B	-	-	A	-	-	D				
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	0.2				

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	444	2	1	1130	17	0	0	0	16	0	32
Future Vol, veh/h	19	444	2	1	1130	17	0	0	0	16	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	20	467	2	1	1189	18	0	0	0	17	0	34

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1189	0	0	469	0	0	1699	1699	468	1699	1700	-
Stage 1	-	-	-	-	-	-	508	508	-	1191	1191	-
Stage 2	-	-	-	-	-	-	1191	1191	-	508	509	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	594	-	-	1103	-	0	74	93	599	74	93	0
Stage 1	-	-	-	-	-	0	551	542	-	231	263	0
Stage 2	-	-	-	-	-	0	231	263	-	551	541	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	594	-	-	1103	-	-	72	90	599	72	90	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	90	-	72	90	-
Stage 1	-	-	-	-	-	-	532	524	-	223	263	-
Stage 2	-	-	-	-	-	-	231	263	-	532	523	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	0	69.6
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	594	-	-	1103	-	72	-
HCM Lane V/C Ratio	-	0.034	-	-	0.001	-	0.234	-
HCM Control Delay (s)	0	11.3	-	-	8.3	-	69.6	0
HCM Lane LOS	A	B	-	-	A	-	F	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.8	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	447	1136	14	19	15
Future Vol, veh/h	8	447	1136	14	19	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	471	1196	15	20	16
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1211	0	-	0	1683	1196
Stage 1	-	-	-	-	1196	-
Stage 2	-	-	-	-	487	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	583	-	-	-	105	229
Stage 1	-	-	-	-	289	-
Stage 2	-	-	-	-	622	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	583	-	-	-	104	229
Mov Cap-2 Maneuver	-	-	-	-	104	-
Stage 1	-	-	-	-	285	-
Stage 2	-	-	-	-	622	-
Approach	EB		WB		SB	
HCM Control Delay, s	0.2		0		36.3	
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	583	-	-	-	104	229
HCM Lane V/C Ratio	0.014	-	-	-	0.192	0.069
HCM Control Delay (s)	11.3	-	-	-	47.7	21.9
HCM Lane LOS	B	-	-	-	E	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7	0.2

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	502	4	26	1051	43	6	0	15	49	1	26
Future Vol, veh/h	12	502	4	26	1051	43	6	0	15	49	1	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	528	4	27	1106	45	6	0	16	52	1	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1151	0	0	532	0	0	1751	1759	528	1724	1718	1106
Stage 1	-	-	-	-	-	-	554	554	-	1160	1160	-
Stage 2	-	-	-	-	-	-	1197	1205	-	564	558	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	614	-	-	1046	-	-	68	86	554	71	91	258
Stage 1	-	-	-	-	-	-	520	517	-	240	272	-
Stage 2	-	-	-	-	-	-	229	259	-	514	515	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	614	-	-	1046	-	-	58	82	554	67	87	258
Mov Cap-2 Maneuver	-	-	-	-	-	-	58	82	-	67	87	-
Stage 1	-	-	-	-	-	-	509	506	-	235	265	-
Stage 2	-	-	-	-	-	-	199	252	-	489	504	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			29.6			106.4		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	58	554	614	-	-	1046	-	-	67	240		
HCM Lane V/C Ratio	0.109	0.029	0.021	-	-	0.026	-	-	0.77	0.118		
HCM Control Delay (s)	74.5	11.7	11	-	-	8.5	-	-	152.9	22		
HCM Lane LOS	F	B	B	-	-	A	-	-	F	C		
HCM 95th %tile Q(veh)	0.3	0.1	0.1	-	-	0.1	-	-	3.5	0.4		

Intersection						
Int Delay, s/veh	5.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	116	468	963	77	33	165
Future Vol, veh/h	116	468	963	77	33	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	122	493	1014	81	35	174
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1095	0	-	0	1751	1014
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	645	-	-	-	95	292
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	645	-	-	-	77	292
Mov Cap-2 Maneuver	-	-	-	-	77	-
Stage 1	-	-	-	-	286	-
Stage 2	-	-	-	-	477	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.4	0		42.5		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	645	-	-	-	77	292
HCM Lane V/C Ratio	0.189	-	-	-	0.451	0.595
HCM Control Delay (s)	11.9	-	-	-	85.6	33.9
HCM Lane LOS	B	-	-	-	F	D
HCM 95th %tile Q(veh)	0.7	-	-	-	1.8	3.6

Intersection												
Int Delay, s/veh	33.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	857	2	27	909	115	0	0	11	103	1	63
Future Vol, veh/h	48	857	2	27	909	115	0	0	11	103	1	63
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	51	902	2	28	957	121	0	0	12	108	1	66
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1078	0	0	904	0	0	-	-	452	1566	2019	479
Stage 1	-	-	-	-	-	-	-	-	-	1013	1013	-
Stage 2	-	-	-	-	-	-	-	-	-	553	1006	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	655	-	-	761	-	-	0	0	560	~ 77	59	538
Stage 1	-	-	-	-	-	-	0	0	-	260	319	-
Stage 2	-	-	-	-	-	-	0	0	-	490	321	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	655	-	-	761	-	-	-	-	560	~ 69	52	538
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ 69	52	-
Stage 1	-	-	-	-	-	-	-	-	-	240	307	-
Stage 2	-	-	-	-	-	-	-	-	-	443	296	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.3			11.6			\$ 427.3		
HCM LOS							B			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	560	655	-	-	761	-	-	103				
HCM Lane V/C Ratio	0.021	0.077	-	-	0.037	-	-	1.707				
HCM Control Delay (s)	11.6	11	-	-	9.9	-	-	\$ 427.3				
HCM Lane LOS	B	B	-	-	A	-	-	F				
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0.1	-	-	13.9				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection												
Int Delay, s/veh	6.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	1069	57	37	594	4	54	0	28	5	0	1
Future Vol, veh/h	11	1069	57	37	594	4	54	0	28	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	1125	60	39	625	4	57	0	29	5	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	629	0	0	1185	0	0	1570	1886	593	1290	1912	313
Stage 1	-	-	-	-	-	-	1179	1179	-	703	703	-
Stage 2	-	-	-	-	-	-	391	707	-	587	1209	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	963	-	-	596	-	-	76	71	454	123	69	689
Stage 1	-	-	-	-	-	-	206	267	-	399	443	-
Stage 2	-	-	-	-	-	-	610	441	-	468	258	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	963	-	-	596	-	-	71	66	454	108	64	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	71	66	-	108	64	-
Stage 1	-	-	-	-	-	-	204	264	-	394	414	-
Stage 2	-	-	-	-	-	-	569	412	-	432	255	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	132.4	35.1
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	100	963	-	-	596	-	-	126
HCM Lane V/C Ratio	0.863	0.012	-	-	0.065	-	-	0.05
HCM Control Delay (s)	132.4	8.8	-	-	11.5	-	-	35.1
HCM Lane LOS	F	A	-	-	B	-	-	E
HCM 95th %tile Q(veh)	4.9	0	-	-	0.2	-	-	0.2

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	1059	23	4	616	8	10	0	3	4	0	9
Future Vol, veh/h	13	1059	23	4	616	8	10	0	3	4	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	14	1115	24	4	648	8	11	0	3	4	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	656	0	0	1139	0	0	1487	1819	570	1242	1823	324
Stage 1	-	-	-	-	-	-	1155	1155	-	656	656	-
Stage 2	-	-	-	-	-	-	332	664	-	586	1167	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	941	-	-	621	-	-	88	79	470	133	78	678
Stage 1	-	-	-	-	-	-	213	274	-	426	465	-
Stage 2	-	-	-	-	-	-	661	461	-	468	270	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	941	-	-	621	-	-	85	77	470	130	76	678
Mov Cap-2 Maneuver	-	-	-	-	-	-	85	77	-	130	76	-
Stage 1	-	-	-	-	-	-	210	270	-	420	462	-
Stage 2	-	-	-	-	-	-	648	458	-	458	266	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	44.4	17.8
HCM LOS			E	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	105	941	-	-	621	-	-	295
HCM Lane V/C Ratio	0.13	0.015	-	-	0.007	-	-	0.046
HCM Control Delay (s)	44.4	8.9	-	-	10.8	-	-	17.8
HCM Lane LOS	E	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	1013	0	0	587	21	0	0	0	19	0	30
Future Vol, veh/h	48	1013	0	0	587	21	0	0	0	19	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	51	1066	0	0	618	22	0	0	0	20	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	618	0	0	1066	0	0	1786	1786	1066	1786	1786	-
Stage 1	-	-	-	-	-	-	1168	1168	-	618	618	-
Stage 2	-	-	-	-	-	-	618	618	-	1168	1168	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	972	-	-	661	-	0	64	82	273	64	82	0
Stage 1	-	-	-	-	-	0	238	270	-	480	484	0
Stage 2	-	-	-	-	-	0	480	484	-	238	270	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	972	-	-	661	-	-	61	78	273	61	78	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	61	78	-	61	78	-
Stage 1	-	-	-	-	-	-	226	256	-	455	484	-
Stage 2	-	-	-	-	-	-	480	484	-	226	256	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	90.5
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	972	-	-	661	-	61	-
HCM Lane V/C Ratio	-	0.052	-	-	-	-	0.328	-
HCM Control Delay (s)	0	8.9	-	-	0	-	90.5	0
HCM Lane LOS	A	A	-	-	A	-	F	A
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	1.2	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	1021	598	17	16	7
Future Vol, veh/h	16	1021	598	17	16	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	1075	629	18	17	7
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	647	0	-	0	1738	629
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	1109	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	948	-	-	-	97	486
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	318	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	948	-	-	-	95	486
Mov Cap-2 Maneuver	-	-	-	-	95	-
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	318	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		39.2		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	948	-	-	-	95	486
HCM Lane V/C Ratio	0.018	-	-	-	0.177	0.015
HCM Control Delay (s)	8.9	-	-	-	50.9	12.5
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	0

Intersection												
Int Delay, s/veh	10.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	56	987	11	19	615	53	13	0	40	48	1	19
Future Vol, veh/h	56	987	11	19	615	53	13	0	40	48	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	59	1039	12	20	647	56	14	0	42	51	1	20
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	703	0	0	1051	0	0	1883	1900	1039	1871	1856	647
Stage 1	-	-	-	-	-	-	1157	1157	-	687	687	-
Stage 2	-	-	-	-	-	-	726	743	-	1184	1169	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	904	-	-	670	-	-	55	70	283	56	75	475
Stage 1	-	-	-	-	-	-	241	273	-	440	450	-
Stage 2	-	-	-	-	-	-	419	425	-	233	269	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	904	-	-	670	-	-	48	63	283	~ 44	68	475
Mov Cap-2 Maneuver	-	-	-	-	-	-	48	63	-	~ 44	68	-
Stage 1	-	-	-	-	-	-	225	255	-	411	437	-
Stage 2	-	-	-	-	-	-	388	412	-	185	252	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			41.4			236.4		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	48	283	904	-	-	670	-	-	44	366		
HCM Lane V/C Ratio	0.285	0.149	0.065	-	-	0.03	-	-	1.148	0.058		
HCM Control Delay (s)	107.5	19.9	9.3	-	-	10.5	-	-	\$ 328.5	15.4		
HCM Lane LOS	F	C	A	-	-	B	-	-	F	C		
HCM 95th %tile Q(veh)	1	0.5	0.2	-	-	0.1	-	-	4.8	0.2		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection						
Int Delay, s/veh	9.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	177	893	559	50	60	118
Future Vol, veh/h	177	893	559	50	60	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	186	940	588	53	63	124
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	641	0	-	0	1900	588
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	1312	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	953	-	-	-	77	513
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	254	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	953	-	-	-	~ 62	513
Mov Cap-2 Maneuver	-	-	-	-	~ 62	-
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	254	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		87.1		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	953	-	-	-	62	513
HCM Lane V/C Ratio	0.196	-	-	-	1.019	0.242
HCM Control Delay (s)	9.7	-	-	-	230.5	14.2
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.7	-	-	-	4.9	0.9
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	635	4	8	752	77	0	0	10	80	0	23
Future Vol, veh/h	50	635	4	8	752	77	0	0	10	80	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	110	-	-	105	-	75	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	53	668	4	8	792	81	0	0	11	84	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	873	0	0	672	0	0	-	-	336	1248	1586	396
Stage 1	-	-	-	-	-	-	-	-	-	808	808	-
Stage 2	-	-	-	-	-	-	-	-	-	440	778	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	781	-	-	928	-	-	0	0	666	132	109	609
Stage 1	-	-	-	-	-	-	0	0	-	345	397	-
Stage 2	-	-	-	-	-	-	0	0	-	571	410	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	781	-	-	928	-	-	-	-	666	122	101	609
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	122	101	-
Stage 1	-	-	-	-	-	-	-	-	-	322	393	-
Stage 2	-	-	-	-	-	-	-	-	-	524	382	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	10.5	75.9
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	666	781	-	-	928	-	-	149
HCM Lane V/C Ratio	0.016	0.067	-	-	0.009	-	-	0.728
HCM Control Delay (s)	10.5	9.9	-	-	8.9	-	-	75.9
HCM Lane LOS	B	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0	0.2	-	-	0	-	-	4.3

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	778	60	43	591	1	50	0	23	8	1	2
Future Vol, veh/h	14	778	60	43	591	1	50	0	23	8	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	101	-	-	198	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	819	63	45	622	1	53	0	24	8	1	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	623	0	0	882	0	0	1283	1594	441	1152	1624	311
Stage 1	-	-	-	-	-	-	881	881	-	712	712	-
Stage 2	-	-	-	-	-	-	402	713	-	440	912	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	968	-	-	775	-	-	124	108	570	155	104	691
Stage 1	-	-	-	-	-	-	312	367	-	394	439	-
Stage 2	-	-	-	-	-	-	601	438	-	571	355	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	968	-	-	775	-	-	116	100	570	140	97	691
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	100	-	140	97	-
Stage 1	-	-	-	-	-	-	307	361	-	388	414	-
Stage 2	-	-	-	-	-	-	563	413	-	538	350	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	49.1	29.9
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	155	968	-	-	775	-	-	156
HCM Lane V/C Ratio	0.496	0.015	-	-	0.058	-	-	0.074
HCM Control Delay (s)	49.1	8.8	-	-	9.9	-	-	29.9
HCM Lane LOS	E	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	2.4	0	-	-	0.2	-	-	0.2

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	965	15	13	582	5	11	0	4	4	0	3
Future Vol, veh/h	10	965	15	13	582	5	11	0	4	4	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	105	-	-	199	-	215	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	1016	16	14	613	5	12	0	4	4	0	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	618	0	0	1032	0	0	1381	1692	516	1171	1695	307
Stage 1	-	-	-	-	-	-	1046	1046	-	641	641	-
Stage 2	-	-	-	-	-	-	335	646	-	530	1054	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	972	-	-	681	-	-	105	94	509	150	94	695
Stage 1	-	-	-	-	-	-	248	308	-	434	473	-
Stage 2	-	-	-	-	-	-	658	470	-	506	305	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	972	-	-	681	-	-	102	91	509	145	91	695
Mov Cap-2 Maneuver	-	-	-	-	-	-	102	91	-	145	91	-
Stage 1	-	-	-	-	-	-	245	305	-	429	463	-
Stage 2	-	-	-	-	-	-	642	460	-	496	302	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.2			36.5			22		
HCM LOS							E			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	130	972	-	-	681	-	-	219				
HCM Lane V/C Ratio	0.121	0.011	-	-	0.02	-	-	0.034				
HCM Control Delay (s)	36.5	8.7	-	-	10.4	-	-	22				
HCM Lane LOS	E	A	-	-	B	-	-	C				
HCM 95th %tile Q(veh)	0.4	0	-	-	0.1	-	-	0.1				

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	933	0	0	552	19	0	0	0	22	0	37
Future Vol, veh/h	34	933	0	0	552	19	0	0	0	22	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	64	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	36	982	0	0	581	20	0	0	0	23	0	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	581	0	0	982	0	0	1635	1635	982	1635	1635	-
Stage 1	-	-	-	-	-	-	1054	1054	-	581	581	-
Stage 2	-	-	-	-	-	-	581	581	-	1054	1054	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1003	-	-	711	-	0	82	102	305	82	102	0
Stage 1	-	-	-	-	-	0	276	305	-	503	503	0
Stage 2	-	-	-	-	-	0	503	503	-	276	305	0
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1003	-	-	711	-	-	80	98	305	80	98	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	80	98	-	80	98	-
Stage 1	-	-	-	-	-	-	266	294	-	485	503	-
Stage 2	-	-	-	-	-	-	503	503	-	266	294	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	67.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1003	-	-	711	-	80	-
HCM Lane V/C Ratio	-	0.036	-	-	-	-	0.289	-
HCM Control Delay (s)	0	8.7	-	-	0	-	67.4	0
HCM Lane LOS	A	A	-	-	A	-	F	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	1.1	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	936	559	18	14	9
Future Vol, veh/h	10	936	559	18	14	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	45	-	-	58	0	38
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	11	985	588	19	15	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	607	0	-	0	1595	588
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	1007	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	981	-	-	-	119	513
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	356	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	981	-	-	-	118	513
Mov Cap-2 Maneuver	-	-	-	-	118	-
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	356	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		29		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	981	-	-	-	118	513
HCM Lane V/C Ratio	0.011	-	-	-	0.125	0.018
HCM Control Delay (s)	8.7	-	-	-	39.8	12.2
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0.1

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	883	4	23	528	44	15	2	37	48	0	29
Future Vol, veh/h	39	883	4	23	528	44	15	2	37	48	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	145	-	145	215	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	41	929	4	24	556	46	16	2	39	51	0	31
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	602	0	0	933	0	0	1654	1661	929	1638	1619	556
Stage 1	-	-	-	-	-	-	1011	1011	-	604	604	-
Stage 2	-	-	-	-	-	-	643	650	-	1034	1015	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	985	-	-	742	-	-	79	98	327	81	104	534
Stage 1	-	-	-	-	-	-	291	320	-	489	491	-
Stage 2	-	-	-	-	-	-	465	468	-	283	318	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	985	-	-	742	-	-	70	91	327	66	96	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	70	91	-	66	96	-
Stage 1	-	-	-	-	-	-	279	307	-	468	475	-
Stage 2	-	-	-	-	-	-	424	453	-	237	305	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.4			33.8			100.4		
HCM LOS							D			F		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	70	289	985	-	-	742	-	-	66	534		
HCM Lane V/C Ratio	0.226	0.142	0.042	-	-	0.033	-	-	0.766	0.057		
HCM Control Delay (s)	70.8	19.5	8.8	-	-	10	-	-	153.7	12.2		
HCM Lane LOS	F	C	A	-	-	B	-	-	F	B		
HCM 95th %tile Q(veh)	0.8	0.5	0.1	-	-	0.1	-	-	3.5	0.2		

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	94	875	526	53	44	77
Future Vol, veh/h	94	875	526	53	44	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	99	921	554	56	46	81
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	610	0	-	0	1673	554
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	1119	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	979	-	-	-	106	536
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	315	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	979	-	-	-	95	536
Mov Cap-2 Maneuver	-	-	-	-	95	-
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	315	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		35.3		
HCM LOS	E					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	979	-	-	-	95	536
HCM Lane V/C Ratio	0.101	-	-	-	0.488	0.151
HCM Control Delay (s)	9.1	-	-	-	74.6	12.9
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.3	-	-	-	2.1	0.5

APPENDIX B-6

YEAR 2030 FUTURE WITH PROJECT WITH MITIGATION CONDITIONS

HCM 6th Signalized Intersection Summary
1: Via Rivera & Hawthorne Blvd

Year 2030 Future with Project Mitigation Conditions
Weekday AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	62	893	4	33	561	145	0	0	3	116	0	80
Future Volume (veh/h)	62	893	4	33	561	145	0	0	3	116	0	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	65	940	4	35	591	153	0	0	3	122	0	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	570	2679	11	462	2623	1170	0	0	252	198	6	97
Arrive On Green	0.73	0.73	0.73	0.73	0.73	0.73	0.00	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	728	3686	16	603	3610	1610	0	0	1610	859	36	616
Grp Volume(v), veh/h	65	460	484	35	591	153	0	0	3	206	0	0
Grp Sat Flow(s),veh/h/ln	728	1805	1897	603	1805	1610	0	0	1610	1512	0	0
Q Serve(g_s), s	2.9	8.4	8.4	2.0	4.8	2.6	0.0	0.0	0.1	11.5	0.0	0.0
Cycle Q Clear(g_c), s	7.7	8.4	8.4	10.5	4.8	2.6	0.0	0.0	0.1	12.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.59		0.41
Lane Grp Cap(c), veh/h	570	1311	1378	462	2623	1170	0	0	252	301	0	0
V/C Ratio(X)	0.11	0.35	0.35	0.08	0.23	0.13	0.00	0.00	0.01	0.69	0.00	0.00
Avail Cap(c_a), veh/h	570	1311	1378	462	2623	1170	0	0	519	549	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	4.5	4.5	6.4	4.0	3.7	0.0	0.0	32.1	37.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.7	0.7	0.3	0.2	0.2	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	4.1	4.3	0.4	2.2	1.1	0.0	0.0	0.1	7.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.7	5.3	5.2	6.8	4.2	3.9	0.0	0.0	32.1	38.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	C	D	A	A
Approach Vol, veh/h	1009				779				3		206	
Approach Delay, s/veh	5.3				4.3				32.1		38.0	
Approach LOS	A				A				C		D	
Timer - Assigned Phs	2				4				6		8	
Phs Duration (G+Y+Rc), s	71.4				18.6				71.4		18.6	
Change Period (Y+Rc), s	6.0				4.5				6.0		4.5	
Max Green Setting (Gmax), s	50.5				29.0				50.5		29.0	
Max Q Clear Time (g_c+I1), s	10.4				14.0				12.5		2.1	
Green Ext Time (p_c), s	0.8				0.2				0.7		0.0	
Intersection Summary												
HCM 6th Ctrl Delay			8.3									
HCM 6th LOS			A									

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	456	18	23	1103	9	92	0	41	0	0	0
Future Vol, veh/h	5	456	18	23	1103	9	92	0	41	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	5	480	19	24	1161	9	97	0	43	0	0	0
Major/Minor	Major1		Major2			Minor1			Minor2			
Conflicting Flow All	1170	0	0	499	0	0	1129	1718	250	1459	1718	581
Stage 1	-	-	-	-	-	-	500	500	-	1209	1209	-
Stage 2	-	-	-	-	-	-	629	1218	-	250	509	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	604	-	-	1075	-	-	161	91	756	92	91	462
Stage 1	-	-	-	-	-	-	527	546	-	197	258	-
Stage 2	-	-	-	-	-	-	442	255	-	738	541	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	604	-	-	1075	-	-	152	84	756	82	84	462
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	180	-	161	182	-
Stage 1	-	-	-	-	-	-	521	540	-	195	241	-
Stage 2	-	-	-	-	-	-	414	239	-	688	535	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	0.2		0.5			22.5			0			
HCM LOS						C			A			
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	344	604	-	-	1075	-	-	-				
HCM Lane V/C Ratio	0.407	0.009	-	-	0.023	-	-	-				
HCM Control Delay (s)	22.5	11	0.1	-	8.4	0.3	-	0				
HCM Lane LOS	C	B	A	-	A	A	-	A				
HCM 95th %tile Q(veh)	1.9	0	-	-	0.1	-	-	-				

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	444	2	1	1130	17	0	0	0	16	0	32
Future Vol, veh/h	19	444	2	1	1130	17	0	0	0	16	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	-	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	20	467	2	1	1189	18	0	0	0	17	0	34

Major/Minor	Major1			Major2			Minor1		Minor2			
Conflicting Flow All	1189	0	0	469	0	0	1699	1699	468	1699	1700	-
Stage 1	-	-	-	-	-	-	508	508	-	1191	1191	-
Stage 2	-	-	-	-	-	-	1191	1191	-	508	509	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	594	-	-	1103	-	0	74	93	599	74	93	0
Stage 1	-	-	-	-	-	0	551	542	-	231	263	0
Stage 2	-	-	-	-	-	0	231	263	-	551	541	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	594	-	-	1103	-	-	72	90	599	72	90	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	72	90	-	169	194	-
Stage 1	-	-	-	-	-	-	532	524	-	223	262	-
Stage 2	-	-	-	-	-	-	230	262	-	532	523	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	0	28.6
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	594	-	-	1103	-	169	-
HCM Lane V/C Ratio	-	0.034	-	-	0.001	-	0.1	-
HCM Control Delay (s)	0	11.3	-	-	8.3	0	28.6	0
HCM Lane LOS	A	B	-	-	A	A	D	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.3	-

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕	↕	↕		↕	↕	
Traffic Vol, veh/h	12	502	4	26	1051	43	6	0	15	49	1	26
Future Vol, veh/h	12	502	4	26	1051	43	6	0	15	49	1	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	145	-	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	13	528	4	27	1106	45	6	0	16	52	1	27
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1151	0	0	532	0	0	1751	1759	528	1724	1718	1106
Stage 1	-	-	-	-	-	-	554	554	-	1160	1160	-
Stage 2	-	-	-	-	-	-	1197	1205	-	564	558	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	614	-	-	1046	-	-	68	86	554	71	91	258
Stage 1	-	-	-	-	-	-	520	517	-	240	272	-
Stage 2	-	-	-	-	-	-	229	259	-	514	515	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	614	-	-	1046	-	-	56	77	554	64	82	258
Mov Cap-2 Maneuver	-	-	-	-	-	-	138	171	-	166	183	-
Stage 1	-	-	-	-	-	-	504	501	-	233	252	-
Stage 2	-	-	-	-	-	-	189	240	-	484	500	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.2			17.6			30.8		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	138	554	614	-	-	1046	-	-	166	254		
HCM Lane V/C Ratio	0.046	0.029	0.021	-	-	0.026	-	-	0.311	0.112		
HCM Control Delay (s)	32.3	11.7	11	0	-	8.5	0	-	36.2	21		
HCM Lane LOS	D	B	B	A	-	A	A	-	E	C		
HCM 95th %tile Q(veh)	0.1	0.1	0.1	-	-	0.1	-	-	1.2	0.4		

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	116	468	963	77	33	165
Future Vol, veh/h	116	468	963	77	33	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	122	493	1014	81	35	174
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1095	0	-	0	1751	1014
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	737	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	645	-	-	-	95	292
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	477	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	645	-	-	-	77	292
Mov Cap-2 Maneuver	-	-	-	-	179	-
Stage 1	-	-	-	-	286	-
Stage 2	-	-	-	-	477	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.4	0		33.2		
HCM LOS	D					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	645	-	-	-	179	292
HCM Lane V/C Ratio	0.189	-	-	-	0.194	0.595
HCM Control Delay (s)	11.9	-	-	-	29.9	33.9
HCM Lane LOS	B	-	-	-	D	D
HCM 95th %tile Q(veh)	0.7	-	-	-	0.7	3.6

HCM 6th Signalized Intersection Summary
1: Via Rivera & Hawthorne Blvd

Year 2030 Future with Project Mitigation Conditions
Weekday School PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	857	2	27	909	115	0	0	11	103	1	63
Future Volume (veh/h)	48	857	2	27	909	115	0	0	11	103	1	63
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	51	902	2	28	957	121	0	0	12	108	1	66
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	428	2755	6	496	2692	1201	0	0	222	185	7	77
Arrive On Green	0.75	0.75	0.75	0.75	0.75	0.75	0.00	0.00	0.14	0.14	0.14	0.14
Sat Flow, veh/h	532	3695	8	626	3610	1610	0	0	1610	877	52	562
Grp Volume(v), veh/h	51	441	463	28	957	121	0	0	12	175	0	0
Grp Sat Flow(s),veh/h/ln	532	1805	1899	626	1805	1610	0	0	1610	1491	0	0
Q Serve(g_s), s	3.3	7.4	7.4	1.4	8.3	1.9	0.0	0.0	0.6	9.7	0.0	0.0
Cycle Q Clear(g_c), s	11.6	7.4	7.4	8.8	8.3	1.9	0.0	0.0	0.6	10.3	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	0.00		1.00	0.62		0.38
Lane Grp Cap(c), veh/h	428	1346	1416	496	2692	1201	0	0	222	270	0	0
V/C Ratio(X)	0.12	0.33	0.33	0.06	0.36	0.10	0.00	0.00	0.05	0.65	0.00	0.00
Avail Cap(c_a), veh/h	428	1346	1416	496	2692	1201	0	0	519	545	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.0	3.9	3.9	5.3	4.0	3.1	0.0	0.0	33.7	37.9	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.6	0.6	0.2	0.4	0.2	0.0	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.6	3.4	3.5	0.3	3.5	0.8	0.0	0.0	0.4	6.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	4.5	4.5	5.6	4.3	3.3	0.0	0.0	33.7	38.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	C	D	A	A
Approach Vol, veh/h		955			1106			12			175	
Approach Delay, s/veh		4.6			4.3			33.7			38.9	
Approach LOS		A			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		73.1		16.9		73.1		16.9				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		50.5		29.0		50.5		29.0				
Max Q Clear Time (g_c+I1), s		13.6		12.3		10.8		2.6				
Green Ext Time (p_c), s		0.8		0.2		1.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				7.3								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕	↗		↕↕			↕↕	
Traffic Vol, veh/h	11	1069	57	37	594	4	54	0	28	5	0	1
Future Vol, veh/h	11	1069	57	37	594	4	54	0	28	5	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	12	1125	60	39	625	4	57	0	29	5	0	1
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	629	0	0	1185	0	0	1570	1886	593	1290	1912	313
Stage 1	-	-	-	-	-	-	1179	1179	-	703	703	-
Stage 2	-	-	-	-	-	-	391	707	-	587	1209	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	963	-	-	596	-	-	76	71	454	123	69	689
Stage 1	-	-	-	-	-	-	206	267	-	399	443	-
Stage 2	-	-	-	-	-	-	610	441	-	468	258	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	963	-	-	596	-	-	68	61	454	103	60	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	167	-	222	149	-
Stage 1	-	-	-	-	-	-	198	257	-	384	398	-
Stage 2	-	-	-	-	-	-	548	396	-	421	248	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			1.1			36			19.8		
HCM LOS							E			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	200	963	-	-	596	-	-	250				
HCM Lane V/C Ratio	0.432	0.012	-	-	0.065	-	-	0.025				
HCM Control Delay (s)	36	8.8	0.2	-	11.5	0.5	-	19.8				
HCM Lane LOS	E	A	A	-	B	A	-	C				
HCM 95th %tile Q(veh)	2	0	-	-	0.2	-	-	0.1				

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	1013	0	0	587	21	0	0	0	19	0	30
Future Vol, veh/h	48	1013	0	0	587	21	0	0	0	19	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	-	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	51	1066	0	0	618	22	0	0	0	20	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	618	0	0	1066	0	0	1786	1786	1066	1786	1786	-
Stage 1	-	-	-	-	-	-	1168	1168	-	618	618	-
Stage 2	-	-	-	-	-	-	618	618	-	1168	1168	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	972	-	-	661	-	0	64	82	273	64	82	0
Stage 1	-	-	-	-	-	0	238	270	-	480	484	0
Stage 2	-	-	-	-	-	0	480	484	-	238	270	0
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	972	-	-	661	-	-	61	78	273	61	78	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	61	78	-	162	184	-
Stage 1	-	-	-	-	-	-	226	256	-	455	484	-
Stage 2	-	-	-	-	-	-	480	484	-	226	256	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	30.3
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	972	-	-	661	-	162	-
HCM Lane V/C Ratio	-	0.052	-	-	-	-	0.123	-
HCM Control Delay (s)	0	8.9	-	-	0	-	30.3	0
HCM Lane LOS	A	A	-	-	A	-	D	A
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	0.4	-

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕	↕	↕		↕	↕	
Traffic Vol, veh/h	56	987	11	19	615	53	13	0	40	48	1	19
Future Vol, veh/h	56	987	11	19	615	53	13	0	40	48	1	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	145	-	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	59	1039	12	20	647	56	14	0	42	51	1	20
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	703	0	0	1051	0	0	1883	1900	1039	1871	1856	647
Stage 1	-	-	-	-	-	-	1157	1157	-	687	687	-
Stage 2	-	-	-	-	-	-	726	743	-	1184	1169	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	904	-	-	670	-	-	55	70	283	56	75	475
Stage 1	-	-	-	-	-	-	241	273	-	440	450	-
Stage 2	-	-	-	-	-	-	419	425	-	233	269	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	904	-	-	670	-	-	44	56	283	~ 40	60	475
Mov Cap-2 Maneuver	-	-	-	-	-	-	133	150	-	110	151	-
Stage 1	-	-	-	-	-	-	203	230	-	371	428	-
Stage 2	-	-	-	-	-	-	381	404	-	167	227	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.3			23.6			48.5		
HCM LOS							C			E		
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	133	283	904	-	-	670	-	-	110	429		
HCM Lane V/C Ratio	0.103	0.149	0.065	-	-	0.03	-	-	0.459	0.049		
HCM Control Delay (s)	35.1	19.9	9.3	0	-	10.5	0	-	62.9	13.8		
HCM Lane LOS	E	C	A	A	-	B	A	-	F	B		
HCM 95th %tile Q(veh)	0.3	0.5	0.2	-	-	0.1	-	-	2	0.2		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

Intersection						
Int Delay, s/veh	9.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	177	893	559	50	60	118
Future Vol, veh/h	177	893	559	50	60	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	186	940	588	53	63	124
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	641	0	-	0	1900	588
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	1312	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	953	-	-	-	77	513
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	254	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	953	-	-	-	~ 62	513
Mov Cap-2 Maneuver	-	-	-	-	~ 62	-
Stage 1	-	-	-	-	450	-
Stage 2	-	-	-	-	254	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.6	0		87.1		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	953	-	-	-	62	513
HCM Lane V/C Ratio	0.196	-	-	-	1.019	0.242
HCM Control Delay (s)	9.7	-	-	-	230.5	14.2
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.7	-	-	-	4.9	0.9
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th Signalized Intersection Summary
1: Via Rivera & Hawthorne Blvd

Year 2030 Future with Project Mitigation Conditions
Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	635	4	8	752	77	0	0	10	80	0	23
Future Volume (veh/h)	50	635	4	8	752	77	0	0	10	80	0	23
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	53	668	4	8	792	81	0	0	11	84	0	24
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	550	2901	17	657	2847	1270	0	0	153	172	3	30
Arrive On Green	0.79	0.79	0.79	0.79	0.79	0.79	0.00	0.00	0.09	0.09	0.00	0.09
Sat Flow, veh/h	645	3679	22	778	3610	1610	0	0	1610	1063	27	312
Grp Volume(v), veh/h	53	328	344	8	792	81	0	0	11	108	0	0
Grp Sat Flow(s),veh/h/ln	645	1805	1896	778	1805	1610	0	0	1610	1402	0	0
Q Serve(g_s), s	2.2	4.2	4.2	0.2	5.3	1.0	0.0	0.0	0.6	6.3	0.0	0.0
Cycle Q Clear(g_c), s	7.5	4.2	4.2	4.5	5.3	1.0	0.0	0.0	0.6	6.9	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.00		1.00	0.78		0.22
Lane Grp Cap(c), veh/h	550	1423	1495	657	2847	1270	0	0	153	204	0	0
V/C Ratio(X)	0.10	0.23	0.23	0.01	0.28	0.06	0.00	0.00	0.07	0.53	0.00	0.00
Avail Cap(c_a), veh/h	550	1423	1495	657	2847	1270	0	0	519	537	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.6	2.5	2.5	3.0	2.6	2.1	0.0	0.0	37.1	40.2	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.4	0.4	0.0	0.2	0.1	0.0	0.0	0.1	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	1.5	1.6	0.1	1.7	0.3	0.0	0.0	0.4	4.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.9	2.8	2.8	3.1	2.8	2.2	0.0	0.0	37.2	40.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	D	D	A	A
Approach Vol, veh/h		725			881			11			108	
Approach Delay, s/veh		2.9			2.8			37.2			40.9	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		77.0		13.0		77.0		13.0				
Change Period (Y+Rc), s		6.0		4.5		6.0		4.5				
Max Green Setting (Gmax), s		50.5		29.0		50.5		29.0				
Max Q Clear Time (g_c+I1), s		9.5		8.9		7.3		2.6				
Green Ext Time (p_c), s		0.6		0.1		0.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				5.4								
HCM 6th LOS				A								

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕	↗		↕↕			↕↕	
Traffic Vol, veh/h	14	778	60	43	591	1	50	0	23	8	1	2
Future Vol, veh/h	14	778	60	43	591	1	50	0	23	8	1	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	45	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	819	63	45	622	1	53	0	24	8	1	2
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	623	0	0	882	0	0	1283	1594	441	1152	1624	311
Stage 1	-	-	-	-	-	-	881	881	-	712	712	-
Stage 2	-	-	-	-	-	-	402	713	-	440	912	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.5	6.5	6.9	7.5	6.5	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.5	5.5	-	6.5	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	968	-	-	775	-	-	124	108	570	155	104	691
Stage 1	-	-	-	-	-	-	312	367	-	394	439	-
Stage 2	-	-	-	-	-	-	601	438	-	571	355	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	968	-	-	775	-	-	112	95	570	135	92	691
Mov Cap-2 Maneuver	-	-	-	-	-	-	221	212	-	255	197	-
Stage 1	-	-	-	-	-	-	302	356	-	382	400	-
Stage 2	-	-	-	-	-	-	544	399	-	530	344	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1			23.2			18.4		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	274	968	-	-	775	-	-	280				
HCM Lane V/C Ratio	0.28	0.015	-	-	0.058	-	-	0.041				
HCM Control Delay (s)	23.2	8.8	0.1	-	9.9	0.4	-	18.4				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	1.1	0	-	-	0.2	-	-	0.1				

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	933	0	0	552	19	0	0	0	22	0	37
Future Vol, veh/h	34	933	0	0	552	19	0	0	0	22	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Free
Storage Length	60	-	-	-	-	98	-	-	-	-	-	25
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	36	982	0	0	581	20	0	0	0	23	0	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	581	0	0	982	0	0	1635	1635	982	1635	1635	-
Stage 1	-	-	-	-	-	-	1054	1054	-	581	581	-
Stage 2	-	-	-	-	-	-	581	581	-	1054	1054	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	-
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	-
Pot Cap-1 Maneuver	1003	-	-	711	-	0	82	102	305	82	102	0
Stage 1	-	-	-	-	-	0	276	305	-	503	503	0
Stage 2	-	-	-	-	-	0	503	503	-	276	305	0
Platoon blocked, %		-	-		-							
Mov Cap-1 Maneuver	1003	-	-	711	-	-	80	98	305	80	98	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	80	98	-	189	210	-
Stage 1	-	-	-	-	-	-	266	294	-	485	503	-
Stage 2	-	-	-	-	-	-	503	503	-	266	294	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	26.7
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	1003	-	-	711	-	189	-
HCM Lane V/C Ratio	-	0.036	-	-	-	-	0.123	-
HCM Control Delay (s)	0	8.7	-	-	0	-	26.7	0
HCM Lane LOS	A	A	-	-	A	-	D	A
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	0.4	-

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	39	883	4	23	528	44	15	2	37	48	0	29
Future Vol, veh/h	39	883	4	23	528	44	15	2	37	48	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	145	-	-	225	58	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	41	929	4	24	556	46	16	2	39	51	0	31
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	602	0	0	933	0	0	1654	1661	929	1638	1619	556
Stage 1	-	-	-	-	-	-	1011	1011	-	604	604	-
Stage 2	-	-	-	-	-	-	643	650	-	1034	1015	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	985	-	-	742	-	-	79	98	327	81	104	534
Stage 1	-	-	-	-	-	-	291	320	-	489	491	-
Stage 2	-	-	-	-	-	-	465	468	-	283	318	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	985	-	-	742	-	-	67	85	327	64	90	534
Mov Cap-2 Maneuver	-	-	-	-	-	-	172	192	-	151	192	-
Stage 1	-	-	-	-	-	-	266	292	-	446	467	-
Stage 2	-	-	-	-	-	-	417	445	-	226	290	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.4			20.9			29.8		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	172	316	985	-	-	742	-	-	151	534		
HCM Lane V/C Ratio	0.092	0.13	0.042	-	-	0.033	-	-	0.335	0.057		
HCM Control Delay (s)	28	18.1	8.8	0	-	10	0	-	40.4	12.2		
HCM Lane LOS	D	C	A	A	-	B	A	-	E	B		
HCM 95th %tile Q(veh)	0.3	0.4	0.1	-	-	0.1	-	-	1.4	0.2		

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	94	875	526	53	44	77
Future Vol, veh/h	94	875	526	53	44	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	135	-	-	110	110	0
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	99	921	554	56	46	81
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	610	0	-	0	1673	554
Stage 1	-	-	-	-	554	-
Stage 2	-	-	-	-	1119	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	979	-	-	-	106	536
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	315	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	979	-	-	-	95	536
Mov Cap-2 Maneuver	-	-	-	-	173	-
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	315	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		20.3		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	979	-	-	-	173	536
HCM Lane V/C Ratio	0.101	-	-	-	0.268	0.151
HCM Control Delay (s)	9.1	-	-	-	33.2	12.9
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1	0.5

Alternate Table 12-2
FORECAST OF TRIP GENERATION BY GATEWAY
PORTUGUESE BEND AREA - WITH ALL 31 HOMES UNDER CONSTRUCTION
EVACUATION ROUTE SCENARIO

Location	[1] Total Gateway Evacuation Forecast Trips [a]	[2] First Five Minutes of		[3] Second Five Minutes of		[4] Third Five Minutes of	
		Evacuation [b] Forecast Trips [a]	Clearing Time [c] (Minutes)	Evacuation [b] Forecast Trips [a]	Clearing Time [c] (Minutes)	Evacuation [b] Forecast Trips [a]	Clearing Time [c] (Minutes)
Narcissa Drive - North of PVDS - Household Vehicle Trips - Const. Worker & Truck PCE Vehicle Trips (220 worker vehicles and 24 PCE truck trips)	136	41	0.5	68	0.9	27	0.4
	137	41	0.5	68	0.9	27	0.4
Peppertree Drive - North of PVDS - Household Vehicle Trips - Const. Worker & Truck PCE Vehicle Trips (220 worker vehicles and 24 PCE truck trips)	132	40	0.5	66	0.9	26	0.3
	107	32	0.4	54	0.7	21	0.3

[a] It is estimated that two vehicles per residential unit would be used during evacuation. Note that this is a conservative assumption as not every residential unit would be occupied during evacuation. A total of 68 and 66 existing homes are expected to evacuate via the Narcissa Drive and Peppertree Drive gateways, respectively. A total of 244 PCE construction trucks and worker trips are forecast and were distributed with 56% exiting via the Narcissa Drive gate and 44% exiting via the Peppertree Drive gate in the case of an emergency evacuation. This assumes all 31 homes are under construction at the same time.

[b] The forecast trips were separated into three five-minute intervals in which 30% of the total number of vehicles evacuate in the first five minutes, 50% evacuate in the next five minutes, and 20% evacuate in the next five minutes. The five-minute intervals were based on information documented in the "Modeling Small Area Evacuation: Can Existing Transportation Infrastructure Impede Public Safety", by Vehicle Intelligence & Transportation Analysis Laboratory, University of California, Santa Barbara, April 2002.

Note: An average of 74.9 cars per minute was used to determine the clearing time during evacuation. This average was based on the clearing times documented in the "Modeling Small Area Evacuation: Can Existing Transportation Infrastructure Impede Public Safety", by Vehicle Intelligence & Transportation Analysis Laboratory, University of California, Santa Barbara, April 2002. It should be noted that the 74.9 cars per minute rate assumes traffic control and inbound traffic closures in the area.