Appendix G
Transportation Analysis

VMT Analysis

for:

Pilot Travel Center

In the City of Palmdale

January 2021

Kimley»Horn

VMT ANALYSIS
FOR THE PROPOSED
PILOT TRAVEL CENTER PROJECT
IN THE CITY OF PALMDALE

Prepared by:

Kimley-Horn and Associates, Inc.

3880 Lemon Street, Suite 420
Riverside, California 92501

JANUARY 2021

TABLE OF CONTENTS Page

LIST OF FIGURES

VEHICLE MILE TRAVELED ANALYSIS
FOR THE PROPOSED
PILOT TRAVEL CENTER PROJECT
IN THE CITY OF PALMDALE

INTRODUCTION

Senate Bill (SB) 743 was approved by the California legislature in September 2013. SB 743 requires changes to California Environmental Quality Act (CEQA), specifically directing the Governor's Office of Planning and Research (OPR) to develop alternative metrics to the use of vehicular "level of service" (LOS) for evaluating transportation projects. OPR has updated guidelines for CEQA and written a technical advisory for evaluating transportation impacts in CEQA and has set a deadline of July 1, 2020 for local agencies to update their CEQA transportation procedures. OPR has recommended that Vehicle Miles Travelled (VMT) replace LOS as the primary measure of transportation impacts. The City of Palmdale has adopted new Transportation Impact Guidelines consistent with the LA County guidelines and now relies on VMT as the measure for determining a project significant transportation impact under the CEQA process.

This technical memorandum was prepared to document the VMT analysis for the Pilot Travel Center project following the City of Palmdale, LA County and Caltrans guidelines.

PROJECT DECRIPTION

The project is located on the north side of Pearblossom Highway (State Route 122 (SR-122)) east of Fallingstar Place in the City of Palmdale. The project site is shown in its regional setting on Figure 1. The project site (approximately 9 acres) is currently bordered to the north by an existing railway and Fort Tejon Road (SR-138), to the south by Pearblossom Highway, to the east by a swap meet site, and to the west by Fallingstar Place. **Figure 1** shows the project vicinity.

The project consists of the construction of a truck stop with eight truck fueling positions and truck stop facilities, a gas station with a convenience market and 16 fueling positions, and an 1,852 square foot fast-food restaurant without a drive-through. A copy of the project site plan is provided on **Figure 2**.

Vehicular access for the project site would be via one unsignalized right-in-only driveway on Fort Tejon Road (Project Driveway 1), one unsignalized right-in/right-out driveway on Pearblossom Highway (Project Driveway 2), and one full access signalized driveway on Pearblossom Highway (Project Driveway 3).

FIGURE 1 - Vicinity Map

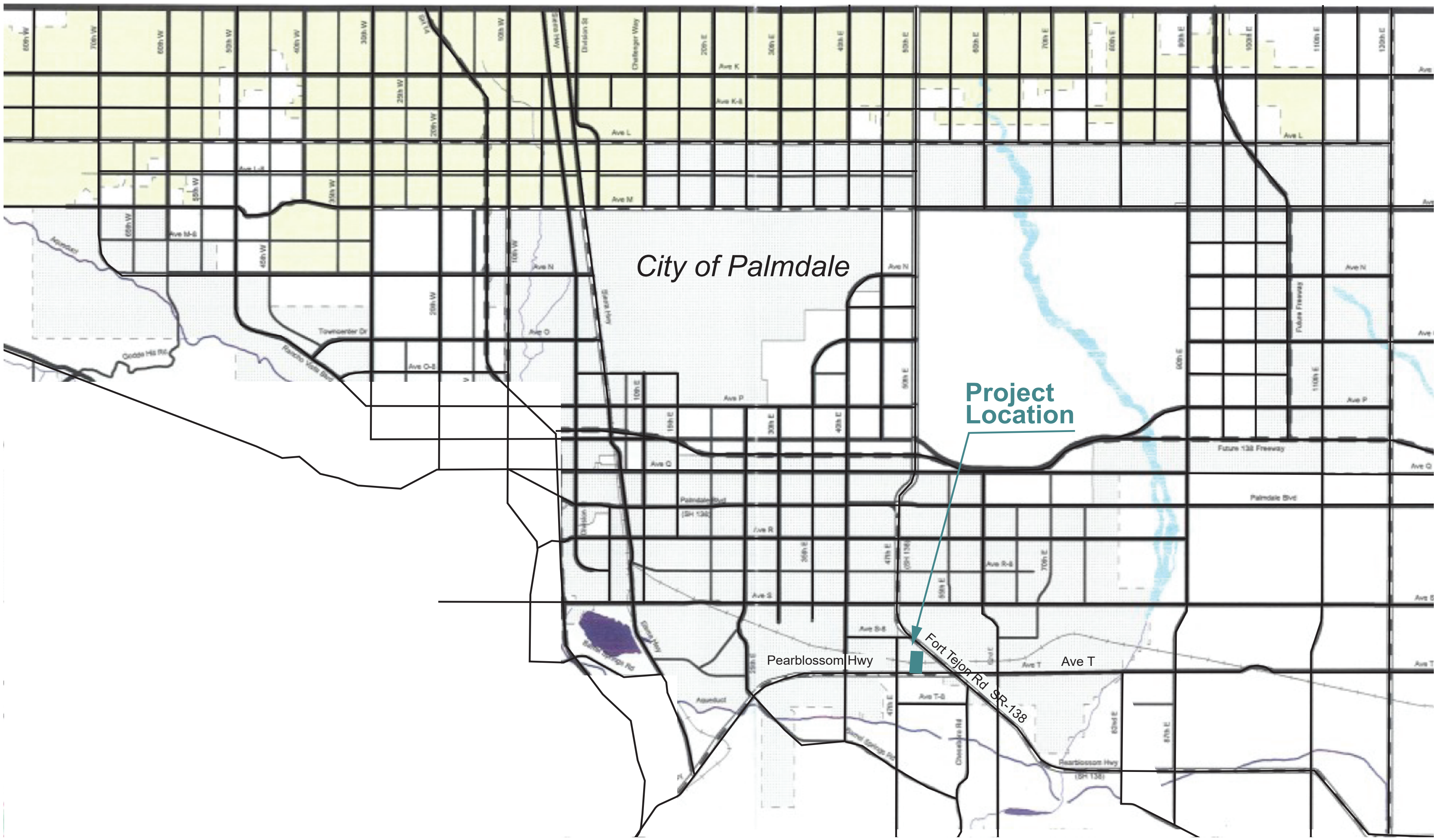


FIGURE 2 - Site Plan

CEQA - VEHICLE MILES TRAVELD

This section documents Vehicle Miles Traveled (VMT)/ SB 743 considerations for the Pilot Travel Center development. The LA County Guidelines provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact without conducting a more detailed level analysis. Screening thresholds are broken into the following three steps:

1. Transit Priority Area (TPA) Screening
2. Low VMT Area Screening
3. Project Type Screening

A land use project needs only meet one of the above screening thresholds to be presumed to result in less than significant impact under CEQA pursuant to SB 743.

Project Type Screening

The Technical Advisory on Evaluating transportation Impacts in CEQA (December 2018) prepared by the Governor's Office of Planning and Research (OPR) identifies that by adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Generally, retail development including stores less than 50,000 square feet might be considered local serving. The proposed project is less than 50,000 square feet and is not anticipated to lead to substitution of longer trips for shorter ones. The City may presume such development creates a less than significant transportation impact. VMT analysis methodology for this project was discussed with the City staff and a qualitative VMT assessment was determined to be appropriate.

One of the major considerations in evaluating SB 743 considerations for a project, is how the December 2018 guidance provided by the Governor's Office of Planning and Research (OPR) or the lead agency's guidelines applies to its evaluation. The guidance does not specifically address the development of Travel Centers and as such there is no clear approach to evaluating this facility. In the absence of clear guidance by either OPR or the lead agency, a logical way to evaluate this type of facility is to consider the major trip purposes of the site in terms of their trip length and frequency. Given the description, four types of trips were broadly considered for this development given its context: (1) employee commute trips; (2) automobile and truck trips related to the Travel Center; (3) other trips related to functioning of the retail uses, and (4) local-serving retail trips. The following discussion is provided regarding these three broad trip types.

> (1) Employee commute trips. The City of Palmdale is a suburban community in character and as such it is understood that many of its residents travel considerable distance for employment. The Southern California Association of Government (SCAG) Local Profile Report (May 2019) for the City of Palmdale identifies 15.1% of commuters work and live in Palmdale, while 84.9% commute to other places. Most often an important strategy for reducing VMT in a community like this is to improve the local jobs/housing balance by increasing the number of employment opportunities. As such, it is reasonable to expect

that increasing local employment opportunities will reduce the average commuter trip lengths of residents, resulting in a net decrease to regional net VMT.

(2) Automobile and Truck trips related to Travel Center. The OPR guidance indicates that, although heavy vehicle traffic can be included for analysis convenience, the provided analysis requirements are specific to passenger-vehicles and light duty trucks. It is generally understood that Interstate commerce and related heavy vehicle traffic are regulated by the federal government as it relates to commerce. Irrespective of this, it is reasonable to assume that the location of this project adjacent to Highway 138 and Pearblossom Highway intesection offers services for traveling public and truck drivers that are on the roadway system and need to stop for services. With the exception of employee commute trips described above, the trips for this type of use are generally pass-by or diverted link. Accordingly, it is reasonable to assume that Travel Center would not generate new demand but meets existing demand that would shorten the distance that customers, or visitors would otherwise travel.

(3) Other trips. These are often the smallest number and shortest distance of trips for a facility like this and include a broad range of trip types, such as, employee lunches off-site, maintenance teams for on-site infrastructure, supply deliveries, etc. As such their impact to the overall VMT of the site is likely minimal. As such it is not likely that they are impactful to the local transportation system and are secondary to the other two trip types discussed.

(4) Local-serving retail trips. New retail development typically redistributes shopping trips rather than creating new trips. By adding retail opportunities to the area thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT.

Finally, it is worth noting that while this facility is expected to provide additional jobs and some related trips to the area, the facility itself is not expected to be the principal catalyst for new trips. Rather, it is anticipated that these trips would most likely occur regardless of whether this location were developed as it is in response to a likely existing demand for services for road users already on the roadway network. Accordingly, if this site were not developed, a similar site will be developed elsewhere to meet this demand and as such the alternative to this development would likely not eliminate any related VMT. In consideration of this and the other considerations discussed above, the Project is not anticipated to result in a significant impact under CEQA pursuant to SB 743.

The Project Type screening threshold is met.

FINDINGS AND CONCLUSIONS

Based on the analysis presented in this technical memorandum, the following are summary of findings and recommendations:

- The proposed project it is not anticipated to result in a significant impact under SB 743, regarding VMT impacts under CEQA. The project meets the project type screening criteria evaluated.

Traffic Study

for:

Pilot Travel Center

In the City of Palmdale

January 2021

Kimley»Horn

TRAFFIC IMPACT STUDY
FOR THE PROPOSED
PILOT TRAVEL CENTER
IN THE CITY OF PALMDALE

Prepared by:

Kimley-Horn and Associates, Inc.
765 The City Drive, Suite 200
Orange, California 92868

January, 2021

TABLE OF CONTENTS **Page**

LIST OF FIGURES Page

LIST OF TABLES Page

APPENDICES

TRAFFIC IMPACT STUDY
FOR THE PROPOSED
PILOT TRAVEL CENTER
IN THE CITY OF PALMDALE

INTRODUCTION

Purpose and Study Objectives

This traffic impact study has been prepared to address the traffic-related effects of the proposed Pilot Travel Center project in the City of Palmdale. This traffic study has been conducted in accordance with the traffic study requirements of the City of Palmdale, Los Angeles County Traffic Impact Analysis Report Guidelines (LA County TIA Guidelines, January, 1, 1997) and Los Angeles County Metropolitan Transportation Authority (Metro) 2010 Congestion Management Program (CMP).

This report includes a description of existing traffic conditions in the surrounding area, estimated project trip generation and distribution, future traffic growth, and an assessment of project-related effects on the transportation system. Where necessary, circulation system improvements have been identified to address project-related deficiencies at the study locations.

Project Overview

The project is located on the north side of Pearblossom Highway (State Route 122 (SR-122)) east of Fallingstar Place in the City of Palmdale. The project site is shown in its regional setting on **Figure 1**. The project site (approximately 9 acres) is currently bordered to the north by an existing railway and Fort Tejon Road (SR-138), to the south by Pearblossom Highway, to the east by a swap meet site, and to the west by Fallingstar Place.

The project consists of the construction of a truck stop with eight truck fueling positions and truck stop facilities, a gas station with a convenience market and 16 fueling positions, and an 1,852 square foot fast-food restaurant without a drive-through. A copy of the project site plan is provided on **Figure 2**.

Vehicular access for the project site would be via one unsignalized right-in-only driveway on Fort Tejon Road (Project Driveway 1), one full access signalized driveway on Pearblossom Highway (Project Driveway 2), and ne unsignalized right-in/right-out driveway on Pearblossom Highway (Project Driveway 2).

FIGURE 1 - Vicinity Map

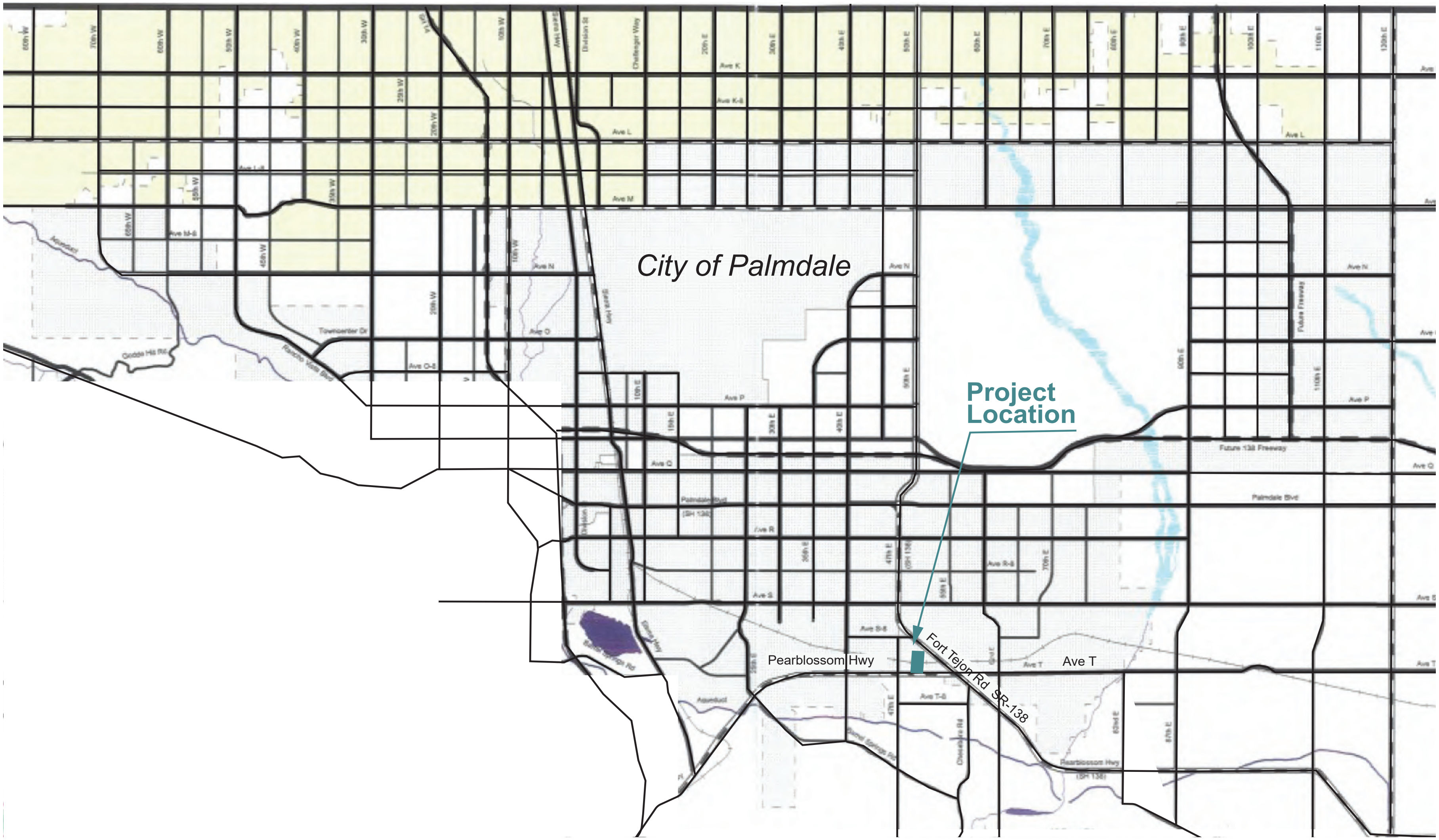


FIGURE 2 - Site Plan

ANALYSIS SCENARIOS AND METHODOLOGY

Analysis Scenarios

Based on the LA County TIA guidelines, the project will be evaluated in the morning and evening peak hours for the following conditions:

- Existing Conditions
- Opening Year 2022 (Existing Plus Ambient Growth)
- Opening Year 2022 Plus Project
- Opening Year 2022 Cumulative (Opening Year Plus Cumulative traffic of other known developments)
- Opening Year 2022 Cumulative Plus Project

If analysis shows that improvement are required based on deficiency criteria, then Opening Year 2022 Plus Project Plus Improvements and Opening Year 2022 Cumulative Plus Project Plus Improvements scenarios will be analyzed.

Intersection Analysis – ICU Methodology

This study includes evaluation of morning and evening peak hour operations at one existing intersection and three driveway intersections located in the City of Palmdale.

Peak hour intersection operations at the proposed signalized driveway was evaluated using the methods prescribed in the LA County TIA Guidelines. The LA County TIA Guidelines require analysis of traffic operations at signalized intersection with the City's jurisdiction to be based on Intersection Capacity Utilization (ICU) methodology as outlined in the Guidelines. The ICU methodology provides a comparison of the number of vehicles passing through an intersection to the theoretical hourly vehicle capacity of that intersection during a given hour. The ICU calculation returns a volume-to-capacity (V/C) ratio, which translates into a corresponding Level of Service (LOS) measure, ranging from LOS A, representing uncongested, free-flowing conditions; to LOS F, representing severely congested, over-capacity conditions. A summary of the description of each Level of Service and the corresponding V/C ratio is provided on the following chart.

LEVEL OF SERVICE DESCRIPTIONS ICU METHODOLOGY		
LOS	**Volume to Capacity (V/C) Ratio**	**Description**
A	0.00-0.60	At LOS A, there are no cycles that are fully loaded, and few are even close to loaded. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turning movements are easily made, and nearly all drivers find intersection freedom.
B	>0.60-0.70	LOS B represents stable operation. An occasional approach phase is fully utilized, and a substantial number are approaching full use. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	>0.70-0.80	In LOS C stable operation continues. Full signal cycle loading intermittent, but more frequent. Occasionally drivers may have to wait through more than one red signal indication, and back-ups may develop behind turning vehicles.
D	>0.80-0.90	LOS D encompasses a zone of increasing restriction, approaching instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but enough cycles with lower demand occur to permit periodic clearance of developing queues, this preventing excessive back-ups.
E	>0.90-1.00	LOS E represents the most vehicles that any particular intersection approach can accommodate. At capacity (V/C = 1.00) there may be long queues of vehicles waiting upstream of the intersection and delays may be great (up to several signal cycles).
F	>1.00	LOS F represents jammed conditions. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration, hence, volumes carried are not predictable. V/C values are highly variable because full utilization of the approach may be prevented by outside conditions.

Intersection Analysis – HCM Methodology

Peak hour intersection operations at the signalized existing intersection and proposed unsignalized driveways were evaluated using the methods prescribed in the Highway Capacity Manual 6th Edition (HCM), consistent with the LA County TIA Guidelines and LA County CMP.

For signalized intersections, the HCM methodology estimates the average delay (in average seconds per vehicle) for each of the movements through the intersection, considering a number of factors, including the number of lanes, volume of traffic, and the signal timing phasing.

For unsignalized intersections, the HCM methodology analysis determines the average total delay for each vehicle making any movement from the stop-controlled minor street, as well as left turns from the major street. Delay values are calculated based on the relationship between traffic on the major street and the availability of acceptable gaps in the traffic stream through which conflicting traffic movements can be made.

The HCM delay forecast translates to a Level of Service designation, ranging from LOS A to LOS F. a summary of each Level of Service and the corresponding delay is provided in the following chart.

LEVEL OF SERVICE DEFINITIONS	
Level of Service	**Description**
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted but not objectionably so.
D	This level encompasses a zone of increasing restriction, approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS		
Level of Service	**Signalized Intersection (Average delay per vehicle, in seconds) [1]**	**Unsignalized Intersections (Average delay per vehicle, in seconds) [2]**
A	≤ 10	0 – 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

[1] Source: Highway Capacity Manual (HCM 2010), Exhibit 18-4.

[2] Source: Highway Capacity Manual (HCM 2010), Exhibits 19-1 and 20-2.

Roadway Segment Analysis

The City of Palmdale General Plan Circulation Element (adopted January 25, 1993) identifies acceptable capacities for roadway segments within the City based on a roadway hierarchy. The chart below shows roadway segment LOS is defined by volume to capacity ratio (v/c).

LEVEL OF SERVICE CRITERIA FOR ROADWAY SEGMENTS [1]		
Roadway Hierarchy	**Typical Number of Lanes**	**Approximate Capacity**
Regional Arterial	4 Lanes with Median	36,000 ADT

[1] Source: City of Palmdale General Plan Circulation Element, Table C-4

V/C BASED LEVEL OF SERVICE	
LOS	**V/C [1]**
A	<0.60
B	0.60
C	0.70
D	0.80
E	0.90
F	>1.00

[1] V/C = Volume to capacity ratio

Level of Service Standards

The City of Palmdale General Plan Circulation Element includes the following policies regarding minimum acceptable level of service (LOS):

> ***Policy C1.4.1:*** *Strive to maintain a Level of Service (LOS) C or better to the extent practical; in some circumstances, a LOS D may be acceptable for a short duration during peak periods.*
>
> ***Policy C1.4.2:*** *Ensure that approvals of new development are correlated with any roadway improvements that would be necessary to maintain the existing level of service or LOS C, whichever is less, and other performance characteristics applicable to the affected roadways. Development shall not be authorized until measures are in place to construct any necessary improvements; these measures may include, but not be limited to, payment of traffic impact fees or construction of street improvements as required in the conditions of approval.*

Level of Service standards for roadway segments in the City of Palmdale is assumed to be LOS D.

AREA CONDITIONS

Study Area

This traffic study includes documentation of existing conditions, future conditions, and identification of project-related deficiencies at the following study intersections:

1. Pearblossom Highway (SR-122) at Fort Tejon Road (SR-138)
2. Fort Tejon Road (SR-138) at Driveway 1
3. Pearblossom Highway (SR-122) at Driveway 2
4. Pearblossom Highway (SR-122) at Driveway 3

With development of the project, the number of primary (new) trips added to the surrounding network is estimated to be considerably lower than the total number of trips visiting the project site. This is due to the nature of the project land uses and the high percent of pass-by and diverted trips entering the site. As such, the intersection of 47th Street at Pearblossom Highway was not included in this analysis, as the project is estimated to add less than 50 new peak-hour trips to that intersection.

This traffic study includes documentation of existing conditions, future conditions, and identification of project-related impacts at the following study segments:

1. Fort Tejon Road (SR-138): North of Pearblossom Highway (SR-122)
2. Pearblossom Highway (SR-122): West of Fort Tejon Road (SR-138)

The study locations were established in consultation with City of Palmdale staff through the Scoping Letter Agreement process. A copy of the approved Scoping Letter Agreement is provided in ***Appendix A***.

Existing Street System

Regional access to the site is provided primarily by Pearblossom Highway (SR-122) and Fort Tejon Road (SR-138), which can both be accessed directly from the project site.

Existing lane configurations and intersection controls at the study intersections are shown on **Figure 3**. A copy of the City of Palmdale Circulation Plan is provided on **Figure 4.** The following provides a description of the roadways surrounding the project site.

Pearblossom Highway (SR-122) – The segment of SR-122 adjacent to the project site and the segment of SR-138 south of Avenue T are referred to as Pearblossom Highway. Pearblossom Highway (SR-122) is a four-lane roadway with a center two-way left-turn lane (TWLTL). On-street parking is allowed along the southern side of the roadway and the posted speed limit is 60 miles per hour (mph). Pearblossom Highway forms the southern boundary of the project site and would provide passenger vehicle access to the site via two driveways. Pearblossom Highway is designated as a Regional Arterial and a Designated Truck Route on the City of Palmdale Circulation Plan.

Fort Tejon Road (SR-138) – The segment of SR-138 north of Avenue T is referred to as Fort Tejon Road. Fort Tejon Road (SR-138) is a four-lane roadway with a center TWLTL. On-street parking is not allowed along the roadway and the posted speed limit is 60 miles per hour (mph). Fort Tejon Road is designated as a Regional Arterial and a Designated Truck Route on the City of Palmdale Circulation Plan.

Transit Service

Transit service within the project area is provided Antelope Valley Transit Authority, which serves Palmdale, Lancaster, and the surrounding communities. The closest bus stops in the project vicinity are located at the intersection of Pearblossom Highway (SR-122) at Fort Tejon Road (SR-138), approximately 0.4 miles from the project site. A description of the bus route serving the project area is provided below.

Route 52 operates within the communities of Pearblossom, Little Rock, and eastern Palmdale. Route 52 operates on weekdays from approximately 4:30 AM to 10:15 PM with approximately 15-minute headways (the time between bus arrivals), on Saturdays from approximately 6:15 AM to 7:30 PM with approximately 30-minute headways, and on Sundays from approximately 6:15 AM to 7:10 PM with approximately 30-minute headways. Bus stops served by Route 82 are located adjacent to the project site at the Cypress Avenue and Slover Avenue intersection and at the Sierra Avenue and Slover Avenue intersection.

Existing Traffic Volumes

Historical morning and evening peak hour turning movement volumes collected on June 28, 2016, were obtained. Annual Average Daily Traffic (AADT) volumes were obtained for the roadway segment of Fort Tejon Road north of Pearblossom Highway from the 2018 Caltrans Count Book. The Average Daily Traffic on the segment of Pearblossom Highway west of Fort Tejon Road was estimated based on the historical peak hour count obtained for the intersection of Pearblossom Highway (SR-122) at Fort Tejon Road (SR-138). Caltrans historic truck classification counts were used to determine heavy vehicle proportions to the roadway segments and the following Passenger Car Equivalent (PCE) factors were applied:

2 -Axel Trucks – 2.0 PCE
3 -Axel Trucks – 2.5 PCE
4 -Axel Trucks – 3.0 PCE

Consistent with LA County CMP Exhibit D-1: General Traffic Volume Growth Factors, a 1.85% annual growth rate was applied to all counts to determine "Existing" (year 2020) traffic conditions.

Existing morning and evening peak hour volumes and daily roadway volumes are presented on

Figure 5. Peak hour intersection traffic count worksheets and daily roadway volume worksheets are provided in ***Appendix B***.

Existing Intersection and Roadway Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours using the analysis procedures and assumptions described previously in this report. The results of the intersection analysis for Existing Conditions are shown on **Table 1**. Copies of Existing Conditions intersection analysis worksheets are provided in ***Appendix C***.

Review of this table indicates that the following intersection is currently operating at Level of Service D or worse under Existing Conditions:

- #1 Fort Tejon Road/SR-138 at Pearblossom Highway – LOS E, PM Peak Hour

Roadway Level of Service analysis was conducted using the analysis procedures and assumptions described previously in this report. As shown in **Table 2**, All study roadway segments are currently operating at acceptable Level of Service under Existing Conditions.

FIGURE 3 - Existing Lane Configuration and Traffic Control

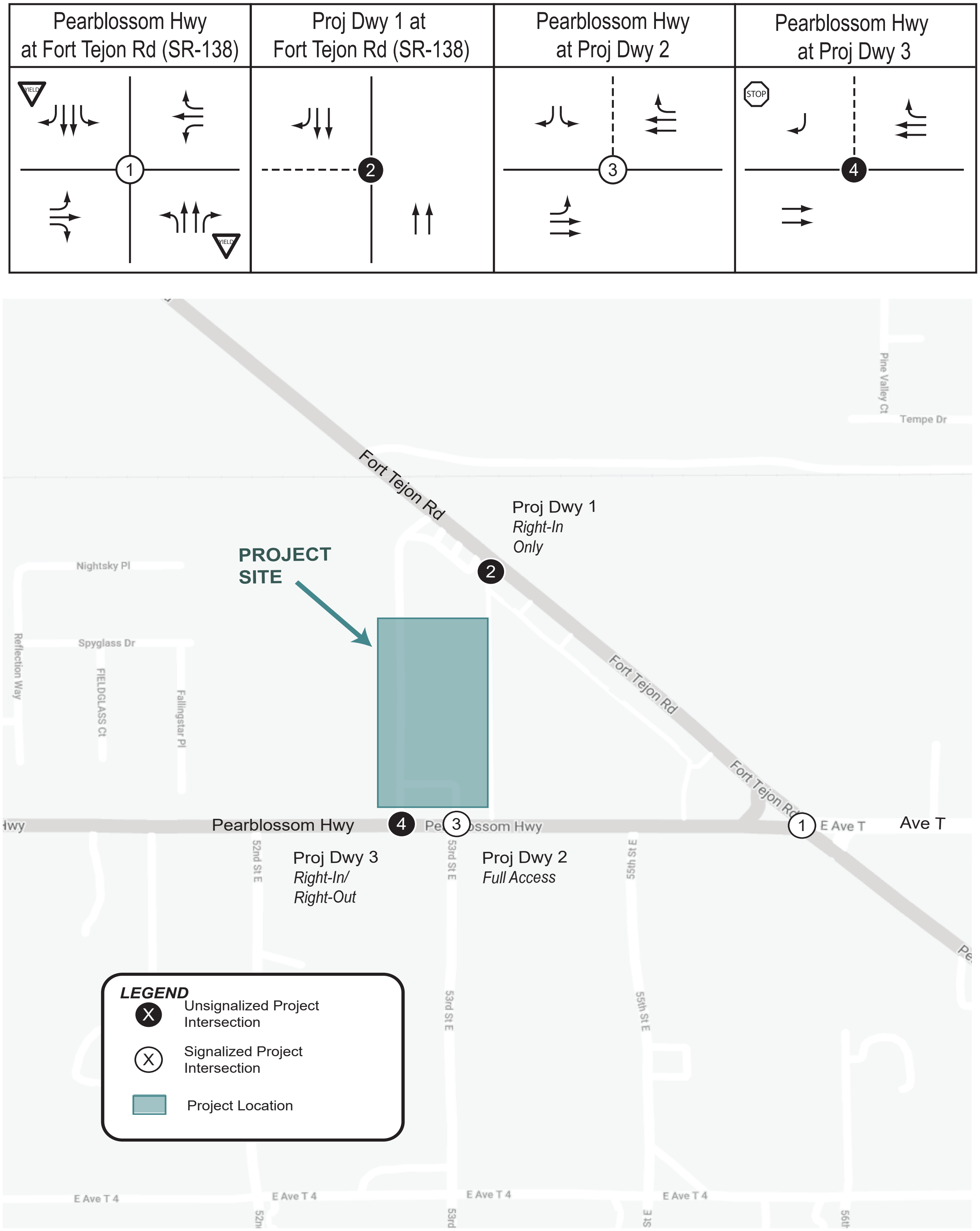


FIGURE 4 - City of Palmdale Circulation Plan

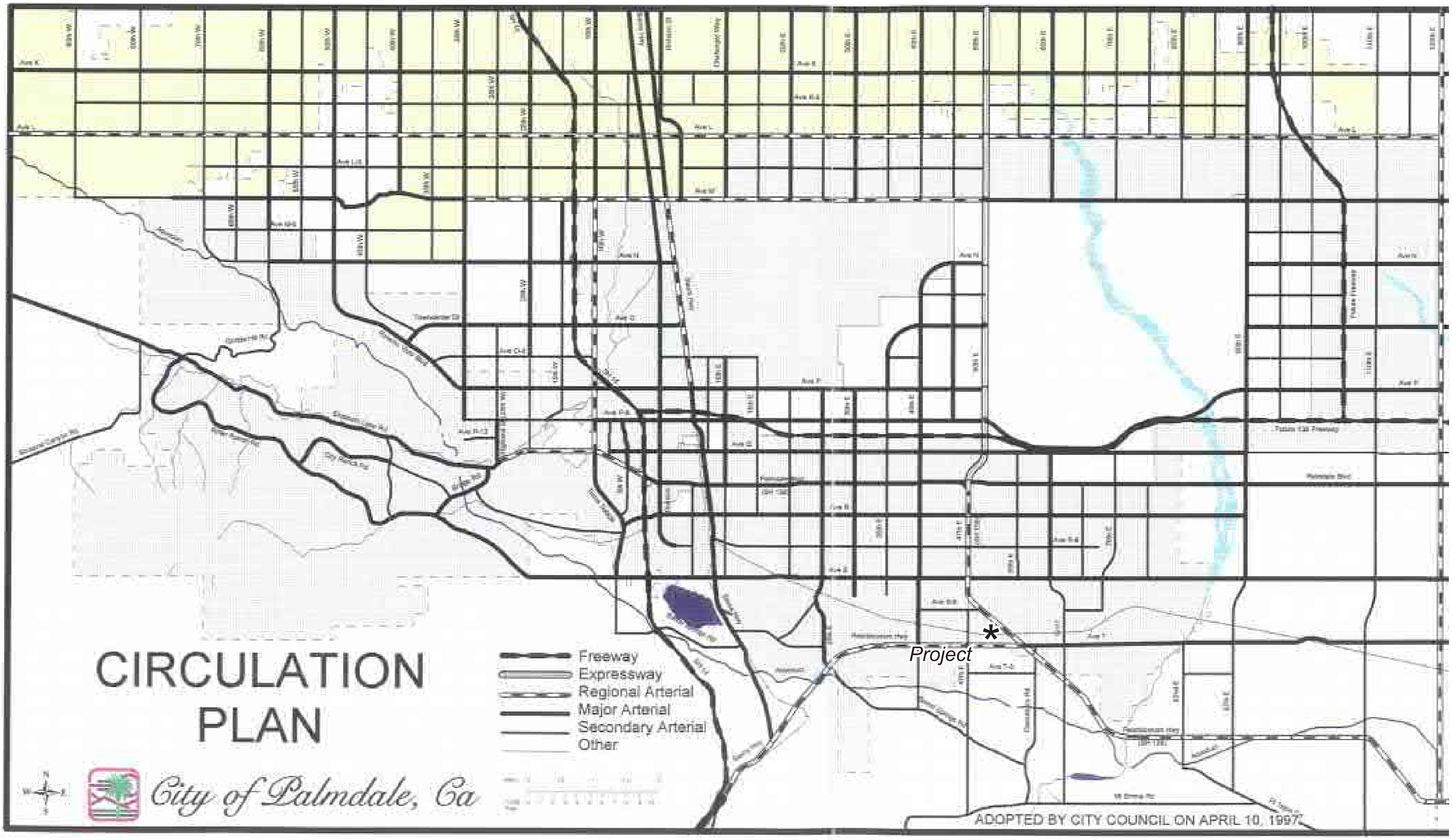


FIGURE 5 - Existing Traffic Volumes

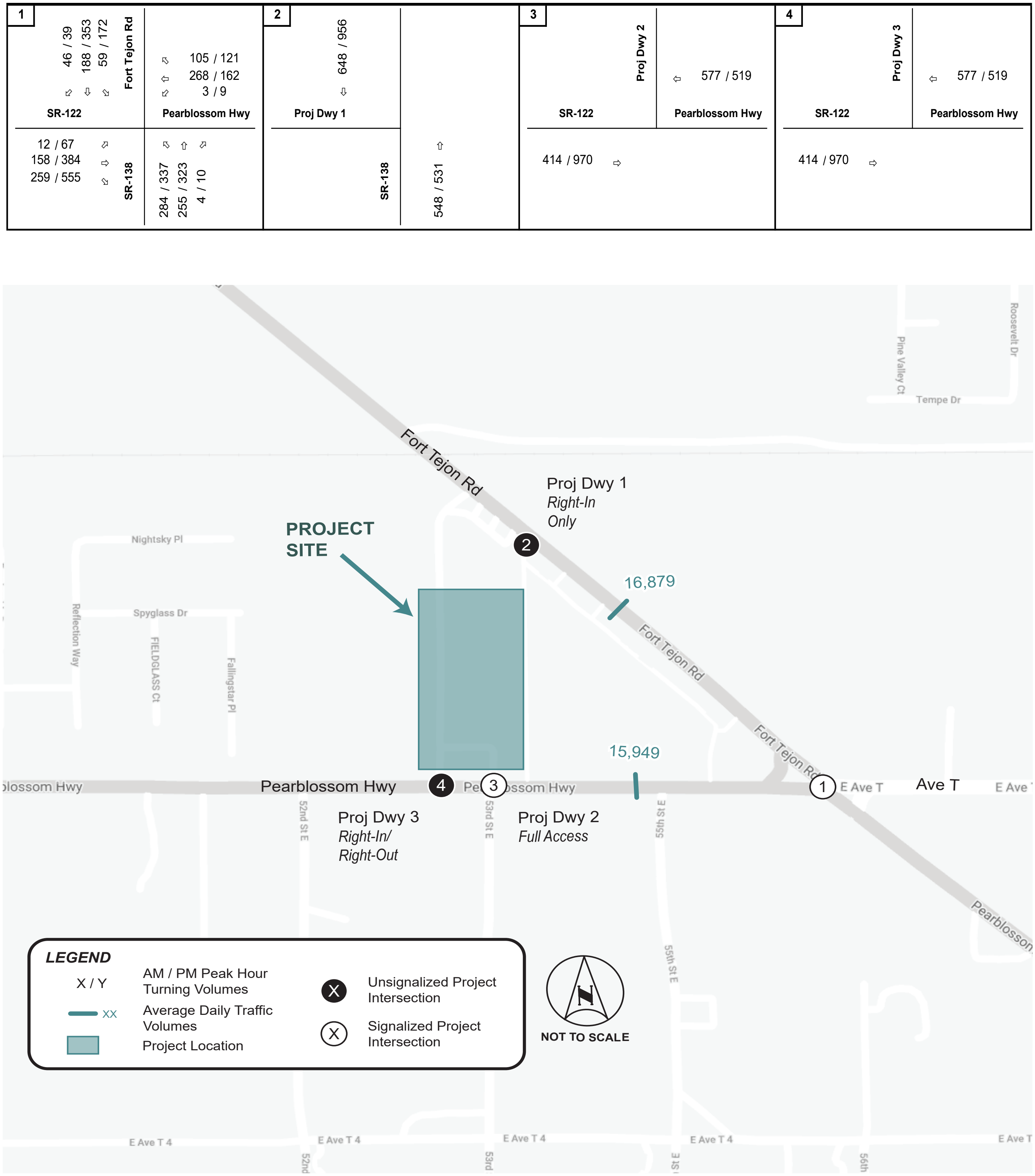


TABLE 1
SUMMARY OF INTERSECTION OPERATION
EXISTING CONDITIONS

Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (a)	LOS	Delay	LOS
1	Fort Tejon Rd/ SR-138 and Pearblossom Hwy	Signal	21.5	C	40.7	**E**
2	Fort Tejon Rd/ SR-138 and Project Dwy 1	Unsignalized, Right-In Only	FUTURE INTERSECTION			
3	Proj Dwy 2 and Pearblossom Hwy	Signal	FUTURE INTERSECTION			
4	Proj Dwy 3 and Pearblossom Hwy	One-Way Stop Controlled, Right-In/Right-Out	FUTURE INTERSECTION			

Notes:

(a) Intersection operation at signalized intersections is expressed in average delay in seconds per vehicle. Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

TABLE 2
SUMMARY OF ROADWAY SEGMENT ANALYSIS
EXISTING CONDITIONS

ROADWAY SEGMENT	ROADWAY CLASSIFICATION	LOS E CAPACITY[1]	ADT (PCE)	V/C RATIO	LOS
Fort Tejon Road (SR-138)					
North of Pearblossom Highway	4-Lane Regional Arterial	36,000	16,879	0.469	A
Pear Blossom Hwy					
West of Fort Tejon	4-Lane Regional Arterial	36,000	15,949	0.443	A

Notes:
[1] Source: City of Palmdale Circulation Element
LOS = Level of Service
ADT = Average Daily Traffic
PCE = Passenger Car Equivalent
V/C = Volume-to-Capacity

PROJECT TRAFFIC

Project Trip Generation

Trip generation estimates for the San Bernardino Travel Center project are based on daily and peak hour trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) and additional sources:

- ITE Land Use 933: Fast Food Restaurant without Drive Through Window
- ITE Land Use 960 Super Convenience Market with Gas Station
- ITE Land USE 950: Truck Stop
- Daily Truck Stop fuel pump data received from similar truck stop sites (contained in ***Appendix D***)

Daily, AM peak hour, and PM peak hour trips were estimated for a proposed 1,852 square foot fast food restaurant without drive through, a super convenience market with gas station with 16 fueling positions, and a truck stop with 8 truck fueling positions.

Passenger car trips were estimated for the fast food restaurant without drive through and super convenience market with gas station land uses. The truck stop land use was estimated to generate only truck trips and as such, a passenger car equivalent (PCE) factor was applied to the truck stop trips (3.0 PCE for 4+-axle trucks) to determine the total PCE trips to be generated by the truck stop land use.

Trip rates and the estimated project trip generation are shown on **Table 3**. Passenger car trip generation for the fast food restaurant without drive through and super convenience market with gas station land uses are shown in **Table 4**, truck stop trip generation is shown in **Table 5**, and total project trip generation is shown in **Table 6**.

ITE trip generation references, including pass-by and diverted trip percentage tables, and internal capture worksheets are included in Appendix A as part of the project scoping agreement.

Trip Distribution and Assignment

Project trip distribution assumptions for the project site were developed taking into account the proposed site use, and routes to and from the freeway system. Separate distribution patterns were assumed for passenger car trips and truck trips. Primary trips are new vehicle trips that are assumed to be added to the network as a result of development of the project site. Separate project trip distributions and assignment were developed for diverted and pass-by trips for both passenger cars and trucks. Diverted trip are defined as vehicle trips that are already on the network and would make a short diversion to visit the project site, resulting in new trips at select study intersections. Pass-by trips are defined as trips already on the network near the project site that would enter into the project site using the project driveways.

Trip distribution and assignment for passenger car primary and diverted trips are shown on **Figure 6**. Trip distribution and assignment for passenger car pass-by trips are shown on **Figure 7**. Trip distribution and assignment for primary and diverted truck trips are shown on **Figure 8**. Trip distribution and assignment for pass-by truck trips are shown on **Figure 9**. **Figure 10** shows the total project trip assignment and overall primary distribution.

TABLE 3
TRIP GENERATION RATES

Land Use	Source	Units	Daily Trip Rate	AM Peak Hour Rate		PM Peak Hour	
				Trip Rate	In : Out	Trip Rate	In : Out
Fast-Foot Restaurant w/o Drive-Through Window	ITE Code 933	1.852 ksf	346.23	25.1	60% : 40%	28.34	50% : 50%
Super Convenience Market/Gas Station	ITE Code 960	16 FP	230.52	28.08	50% : 50%	22.96	50% : 50%
Truck Stop	Data (a)/ITE Code 950	8 Truck FP	77.75	7.18	51% : 49%	8.41	49% : 51%

Notes
KSF = thousand square feet, FP = Fueling Positions
AM and/or PM rates correspond to peak of adjacent street traffic
Trip Generation data for ITE Codes from *ITE Trip Generation, 10th Edition*
(a) Daily Trip Generation data received from Pilot

TABLE 4
PASSENGER CAR TRIP GENERATION

Proposed Land Use (a)	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Fast-Food Restaurant without Drive-Through (b)	1.852 ksf	641	28	18	46	26	26	52
Internal Capture (c) (Daily: 10%, AM: 7%, PM: 9%)		*-64*	*-2*	*-1*	*-3*	*-3*	*-2*	*-5*
Net Driveway Trips – Fast-food Restaurant without Drive-Through		577	26	17	43	23	24	47
Pass-By Trips (d) (Daily: 50%, AM: 49%, PM: 50%)		*-289*	*-13*	*-8*	*-21*	*-12*	*-12*	*-24*
Diverted Trips (e) (Daily: 25%, AM: 28%, PM: 23%)		*-144*	*-6*	*-6*	*-12*	*-6*	*-5*	*-11*
Net Primary Trips – Fast-food Restaurant without Drive-Through		***144***	***7***	***3***	***10***	***5***	***7***	***12***
Super Convenience Market/Gas Station (b)	16 Fueling Positions	3,688	225	224	449	184	183	367
Internal Capture (c) (Daily: 10%, AM: 7%, PM: 9%)		*-369*	*-16*	*-15*	*-31*	*-17*	*-16*	*-33*
Net Driveway Trips – Gas Station with Convenience Market		3,319	209	209	418	167	167	334
Pass-By Trips (d) (Daily: 59%, AM: 62%, PM: 56%)		*-1,958*	*-130*	*-129*	*-259*	*-94*	*-93*	*-187*
Diverted Trips (e) (Daily: 26%, AM: 21%, PM: 31%)		*-863*	*-44*	*-44*	*-88*	*-52*	*-52*	*-104*
Net Primary Trips – Super Convenience Market/Gas Station		***498***	***35***	***36***	***71***	***21***	***22***	***43***
Net Passenger Car Trips (f)	***Net Driveway Trips***	***3,896***	***235***	***226***	***461***	***190***	***191***	***381***
	Net Primary Trips	***642***	***42***	***39***	***81***	***26***	***29***	***55***

Notes
(a) Passenger Car trips include trips to 2.469 ksf Fast-Food Restaurant with drive-thru and a 12 fueling position Super Convenience Market/Gas Station.
(b) Trip Generation data from ITE Trip Generation Manual, 10th Edition
(c) Internal capture rates from ITE Trip Generation Handbook, 3rd Edition NCHRP 684 Interna Trip Capture Estimation Tool
(d) Pass-by rates from ITE Trip Generation Handbook, 3rd Edition for ITE LU 934 Fast-Food Restaurant With Drive-Through Window and LU 945 Gasoline/Service Station With Convenience Market
(e) Diverted trip rates from ITE Trip Generation Handbook, 3rd Edition for ITE LU 934 Fast-Food Restaurant With Drive-Through Window and LU 945 Gasoline/Service Station With Convenience Market
(f) Net passenger car trips are the sum of trips generated by the Fast-Food Restaurant without drive-thru land use and Super Convenience Market/Gas Station land use

TABLE 5
PROJECT TRUCK TRIP GENERATION

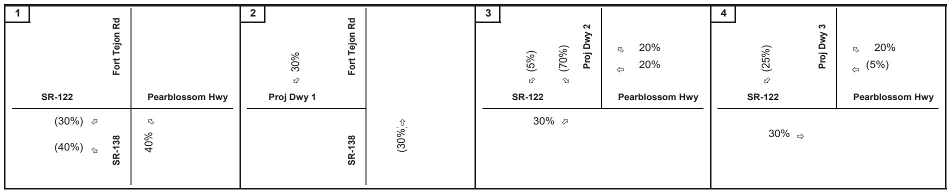
Proposed Land Use	Units	Daily Trips (a)	AM Peak Hour (b)			PM Peak Hour (b)		
			In	Out	Total	In	Out	Total
Truck Stop	8 Fueling Positions	622	29	28	57	33	34	67
Internal Capture (c) 0%		*0*	*0*	*0*	*0*	*0*	*0*	*0*
Net Driveway Trips – Truck Stop		622	29	28	57	33	34	67
Net Driveway Trips in PCE (PCE=3.0)		1,866	87	84	171	99	102	201
Pass-By Trips (d) (Daily: 5%, AM: 5%, PM: 5%)		*-31*	*-2*	*-1*	*-3*	*-1*	*-2*	*-3*
Diverted Trips (e) (Daily: 59%, AM: 62%, PM: 56%)		*-373*	*-18*	*-17*	*-35*	*-19*	*-19*	*-38*
Net Primary Trips – Truck Stop		***218***	***9***	***10***	***19***	***13***	***13***	***26***
Net Primary Trips in PCE (PCE=3.0)		***654***	***27***	***30***	***57***	***39***	***39***	***78***

Notes
(a) Truck trips include trips to the Truck Stop land use portion only, using daily trip information obtained from similar faclilities
(b) Peak hour information estimated using peak hour percentages from ITE Trip Generation Manual, 10th Edition
(c) No internal capture was assumed for the Truck Stop land use, as a truck stop is assumed to include a variety of services
(d) As there was no supporting data available to define the number of pass-by trips, pass-by rates were estimated to be 5%
(e) As there was no supporting data available to define the number of pass-by trips, diverted rates were estimated to be similar to a Super Convenience Market with Gas Station

TABLE 6
TOTAL PROJECT TRIP GENERATION

	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Total Primary Trips							
Fast Food w/o Drive-Through	144	7	3	10	5	7	12
Super Convenience Market/Gas Station	498	35	36	71	21	22	43
Truck Stop (PCE = 3.0)	654	27	30	57	39	39	78
Total Primary Trip Generation	**1,296**	**69**	**69**	**138**	**65**	**68**	**133**
Total Driveway Trips							
Fast Food w/o Drive-Through	577	26	17	43	23	24	47
Super Convenience Market/Gas Station	3,319	209	209	418	167	167	334
Truck Stop (PCE = 3.0)	1,866	87	84	171	99	102	201
Total Driveway Trip Generation	**5,762**	**322**	**310**	**632**	**289**	**293**	**582**

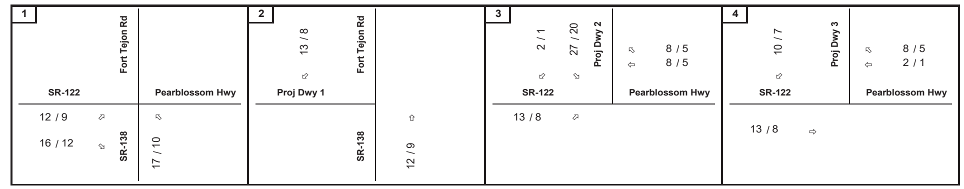
FIGURE 6 - Project Trip Distribution and Assignment- Passenger Cars



Passenger Cars - Primary Trip Distribution

Legend
X% / (Y%) = IN / OUT PERCENT DISTRIBUTION

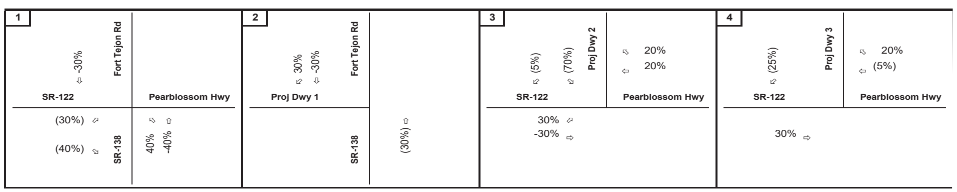
NOT TO SCALE



Passenger Cars - Primary Trip Assignment

Legend
X / Y = AM / PM PEAK HOUR TURNING VOLUMES

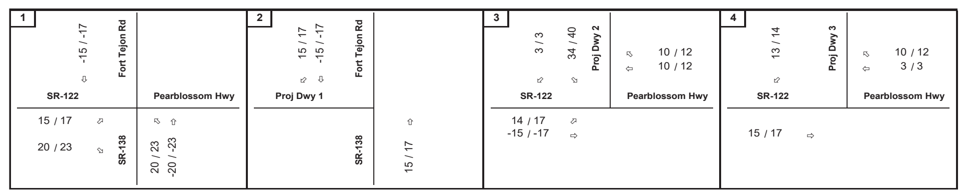
NOT TO SCALE



Passenger Cars - Diverted Trip Distribution

Legend
X% / (Y%) = IN / OUT PERCENT DISTRIBUTION

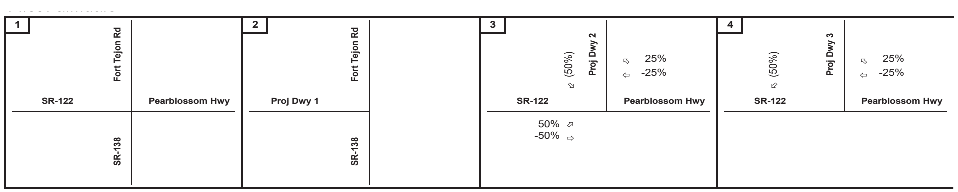
NOT TO SCALE



Passenger Cars - Diverted Trip Assignment

Legend
X / Y = AM / PM PEAK HOUR TURNING VOLUMES

NOT TO SCALE

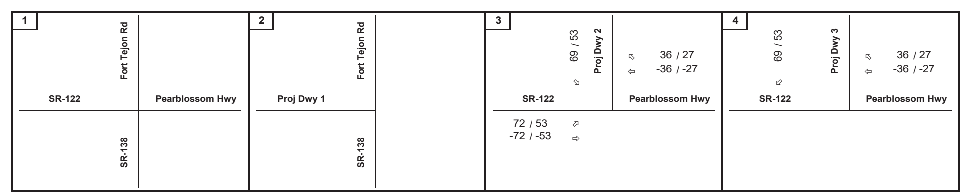


Passenger Cars - Pass-By Trip Distribution

Legend
X% / (Y%) = IN / OUT PERCENT DISTRIBUTION

NOT TO SCALE

Note: Negative volumes indicate pass-by trips that have re-routed to/from the project site

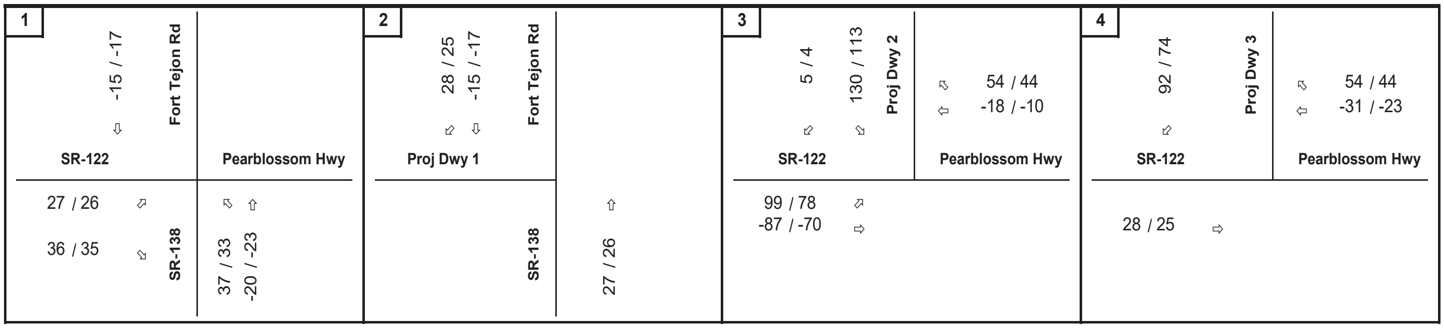


Passenger Cars - Pass-By Trip Assignment

Legend
X / Y = AM / PM PEAK HOUR TURNING VOLUMES

NOT TO SCALE

FIGURE 7 - Project-Related Passenger Car Traffic Volumes



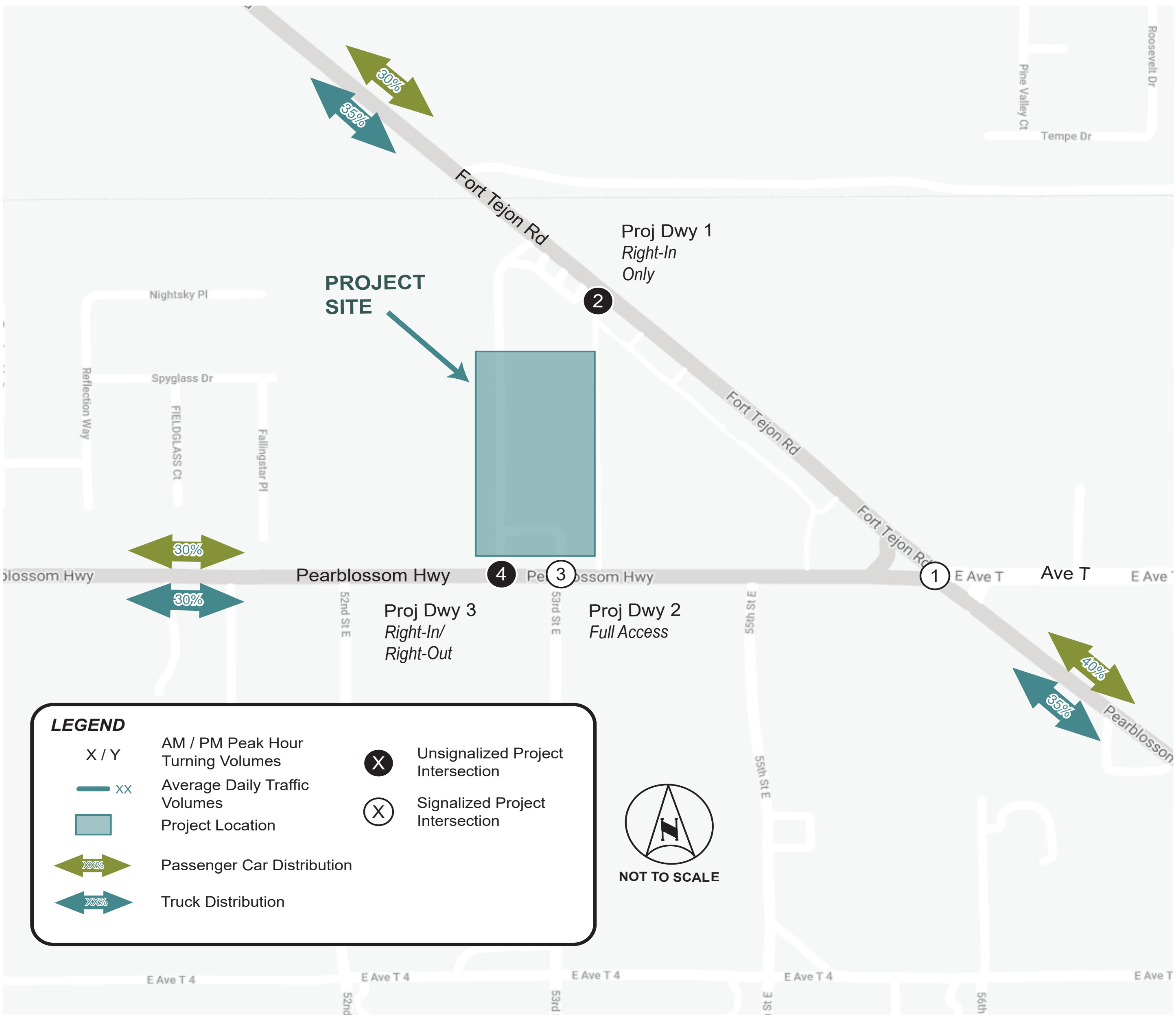
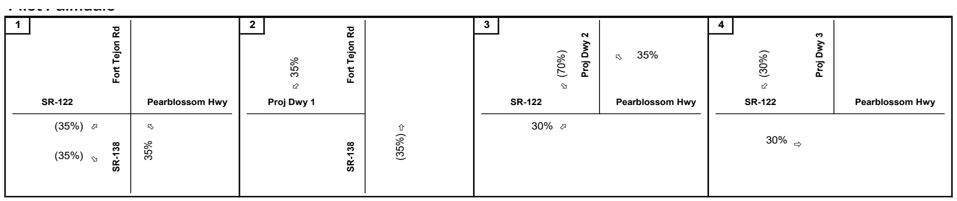


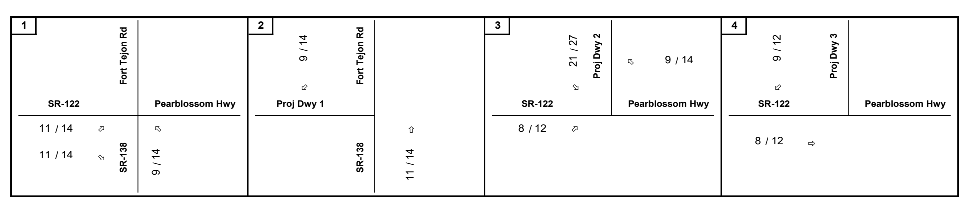
FIGURE 8 - Project Trip Distribution and Assignment- Trucks



Trucks - Primary Trip Distribution

Legend
X% / (Y%) = IN / OUT PERCENT DISTRIBUTION

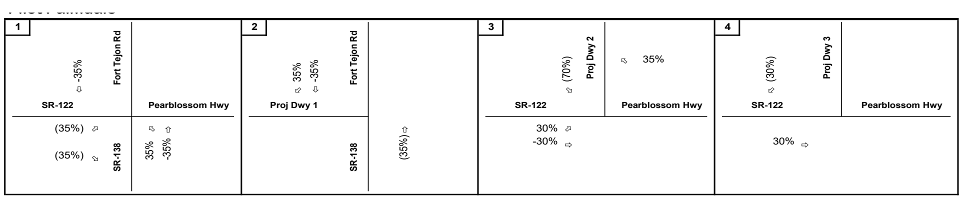
NOT TO SCALE



Trucks - Primary Trip Assignment

Legend
X / Y = AM / PM PEAK HOUR TURNING VOLUMES

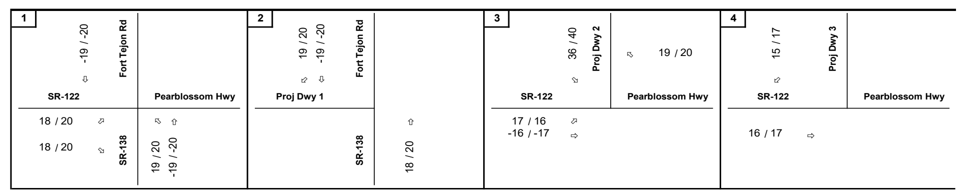
NOT TO SCALE



Trucks - Diverted Trip Distribution

Legend
X% / (Y%) = IN / OUT PERCENT DISTRIBUTION

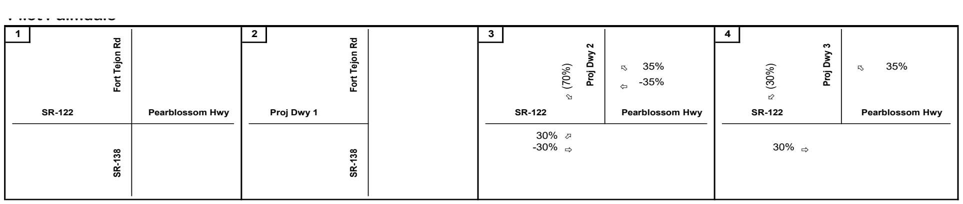
NOT TO SCALE



Trucks - Diverted Trip Assignment

Legend
X / Y = AM / PM PEAK HOUR TURNING VOLUMES

NOT TO SCALE

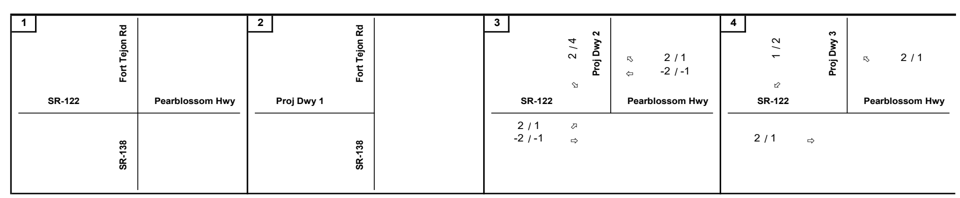


Trucks - Pass-By Trip Distribution

Legend
X% / (Y%) = IN / OUT PERCENT DISTRIBUTION

NOT TO SCALE

Note: Negative volumes indicate pass-by trips that have re-routed to/from the project site

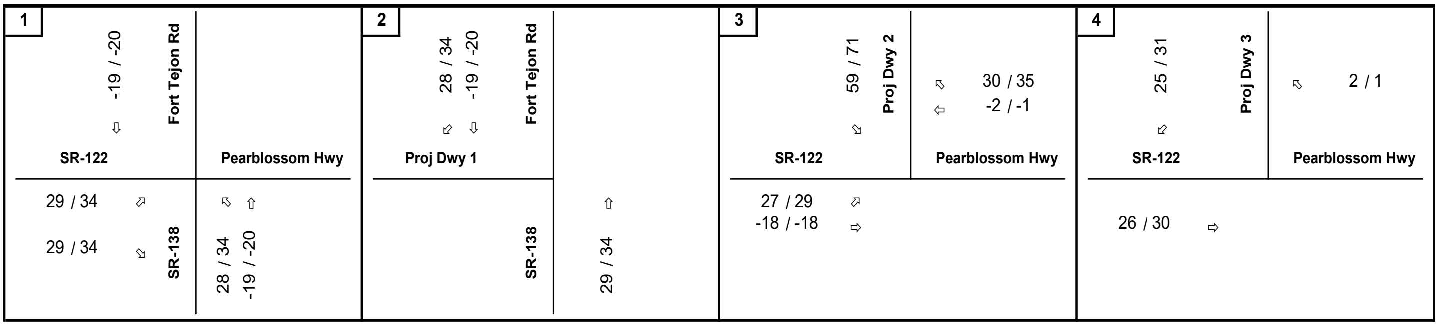


Trucks - Pass-By Trip Assignment

Legend
X / Y = AM / PM PEAK HOUR TURNING VOLUMES

NOT TO SCALE

FIGURE 9 - Project-Related Truck Traffic Volumes



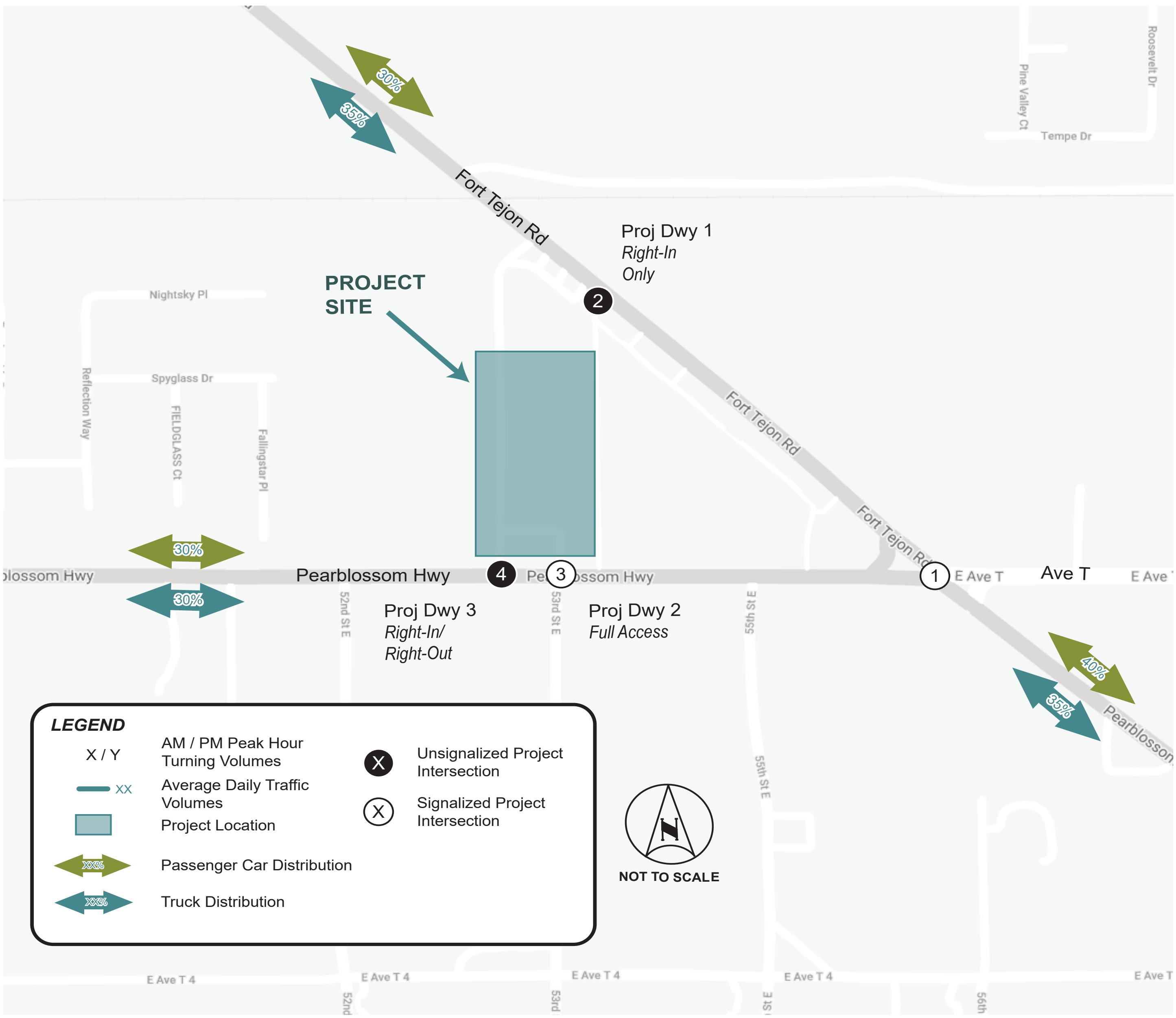
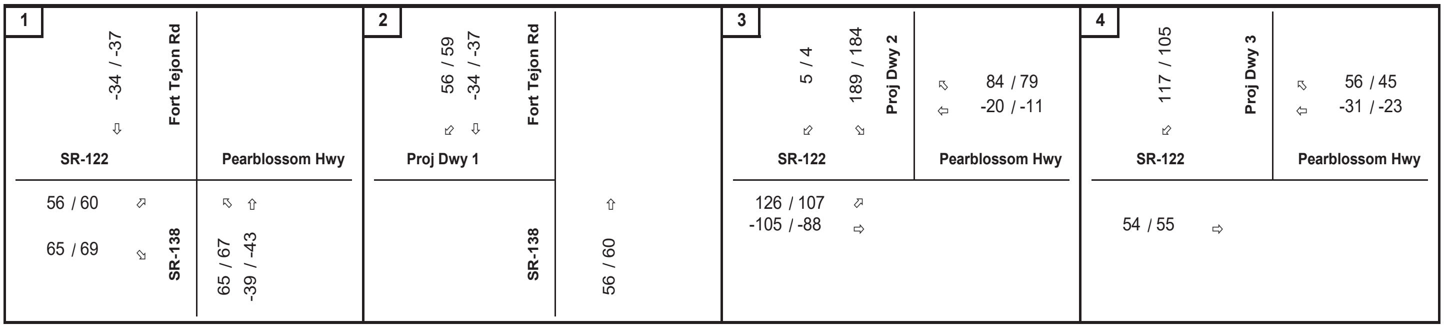
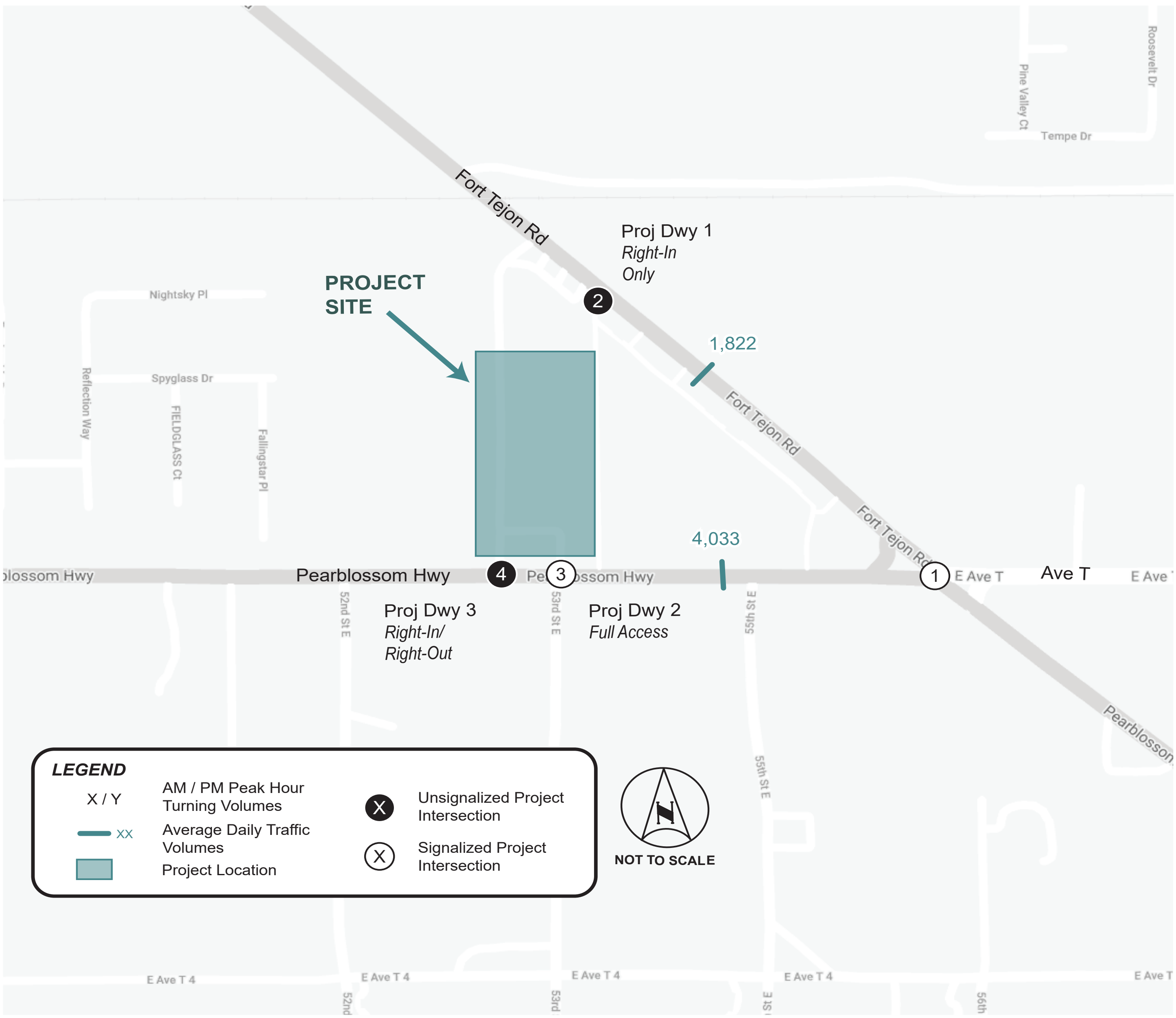


FIGURE 10 - Project-Related Total Traffic Volumes





FUTURE CONDITIONS

Project Opening Year 2022 Conditions

The Project Opening Year (the year the project would be constructed and occupied) is anticipated to be Year 2022. An ambient growth rate of 1.8% per year to Project Opening Year 2022 was applied to existing traffic volumes to capture background traffic growth.

Ambient growth was added to existing traffic to develop Project Opening Year 2022 forecasts. The resulting peak hour turning movement volumes at the study locations are shown in **Figure 11**.

Intersection and Roadway Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours for the Project Opening Year 2022 condition. The results are shown on **Table 7**. Intersection analysis worksheets for this scenario are provided in ***Appendix C***.

Review of this table indicates that the following intersection is projected to operate at Level of Service D or worse:

- #1 Fort Tejon Road/SR-138 at Pearblossom Highway – LOS E, PM Peak Hour

Roadway Level of Service analysis was conducted using the analysis procedures and assumptions described previously in this report. As shown in **Table 8**, all study roadway segments are projected to operate at acceptable Level of Service under Project Opening Year 2022 Conditions.

FIGURE 11 - Opening Year 2022 Base Traffic Volumes

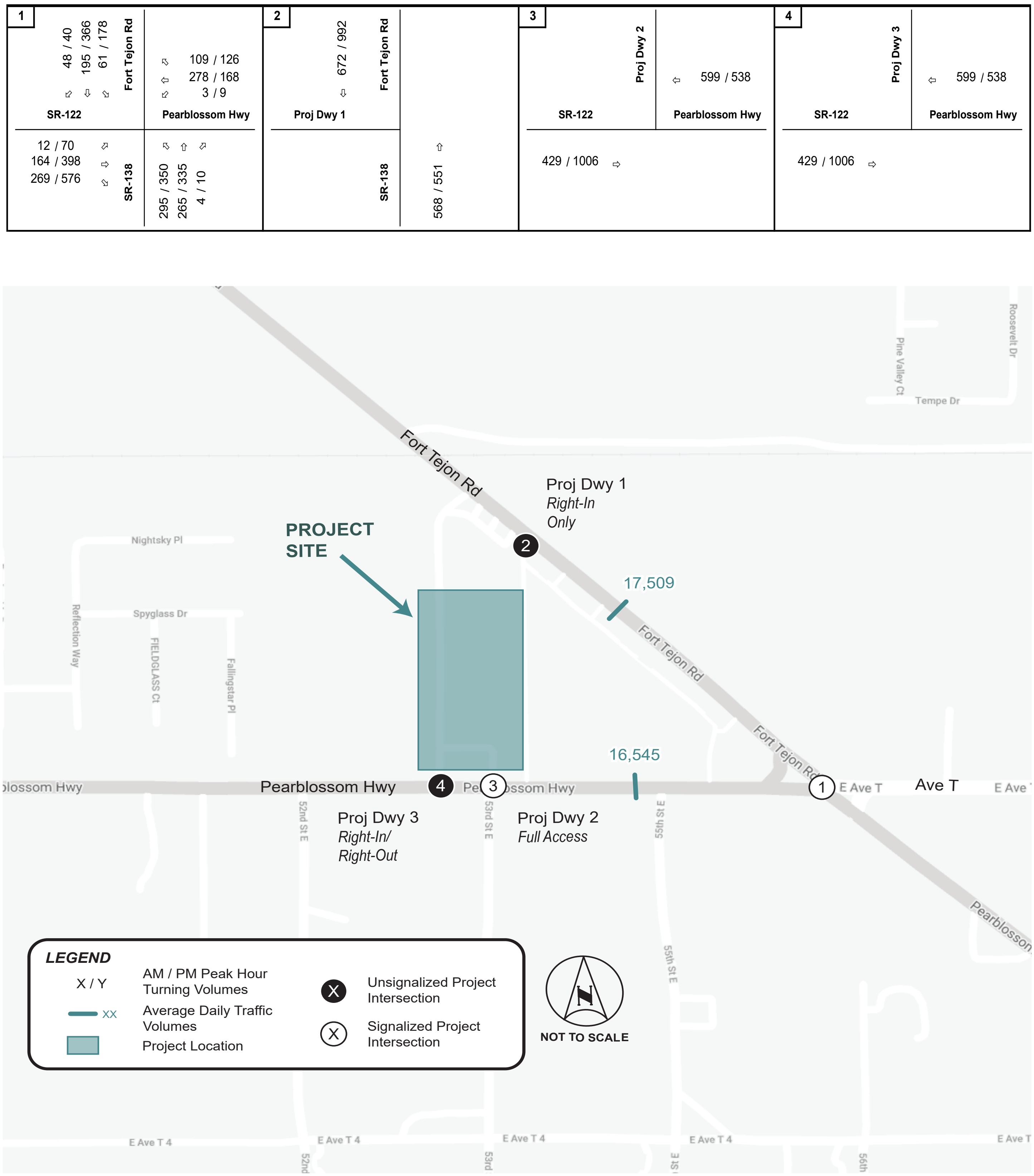


TABLE 7
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2022 CONDITIONS

Int. #	Intersection	Traffic Control	AM Peak Hour Delay (a)	AM Peak Hour LOS	PM Peak Hour Delay	PM Peak Hour LOS
1	Fort Tejon Rd/ SR-138 and Pearblossom Hwy	Signal	22.0	C	45.6	**E**
2	Fort Tejon Rd/ SR-138 and Project Dwy 1	Unsignalized, Right-In Only	FUTURE INTERSECTION			
3	Proj Dwy 2 and Pearblossom Hwy	Signal	FUTURE INTERSECTION			
4	Proj Dwy 3 and Pearblossom Hwy	One-Way Stop Controlled, Right-In/Right-Out	FUTURE INTERSECTION			

Note:

(a) Intersection operation at signalized intersections is expressed in average delay in seconds per vehicle. Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

TABLE 8
SUMMARY OF ROADWAY SEGMENT ANALYSIS
OPENING YEAR 2022

ROADWAY SEGMENT	ROADWAY CLASSIFICATION	LOS E CAPACITY[1]	OPENING YEAR 2022 ADT (PCE)	OPENING YEAR 2022 V/C RATIO	OPENING YEAR 2022 LOS
Fort Tejon Road (SR-138)					
North of Pearblossom Highway	4-Lane Regional Arterial	36,000	17,509	0.486	A
Pear Blossom Hwy					
West of Fort Tejon	4-Lane Regional Arterial	36,000	16,545	0.46	A

Notes:
[1] Source: City of Palmdale Circulation Element
LOS = Level of Service
ADT = Average Daily Traffic
PCE = Passenger Car Equivalent
V/C = Volume-to-Capacity

FUTURE CONDITIONS WITH PROJECT

Project Opening Year 2022 Plus Project

Project-related traffic was added to the Project Opening Year 2022 traffic volumes, and the resulting peak hour turning movement volumes at the study intersections are shown on **Figure 13**.

Intersection and Roadway Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours for the Project Opening Year 2022 Plus Project condition. The results of the intersection analysis are shown on **Table 9**. Copies of intersection analysis worksheets for this scenario are provided in ***Appendix C***.

Review of this table indicates that all study intersections would operate at an acceptable Level of Service under Opening Year 2022 Plus Project Conditions except for the following:

- #1: Fort Tejon Rd/SR-138 and Pearblossom Hwy – LOS D, AM Peak Hour; LOS E, PM Peak Hour.

Roadway Level of Service analysis was conducted using the analysis procedures and assumptions described previously in this report. As shown in **Table 10**, all study roadway segments are projected to operate at acceptable Level of Service under Project Opening Year Plus Project Conditions.

FIGURE 12 - Opening Year 2022 Plus Project Traffic Volumes

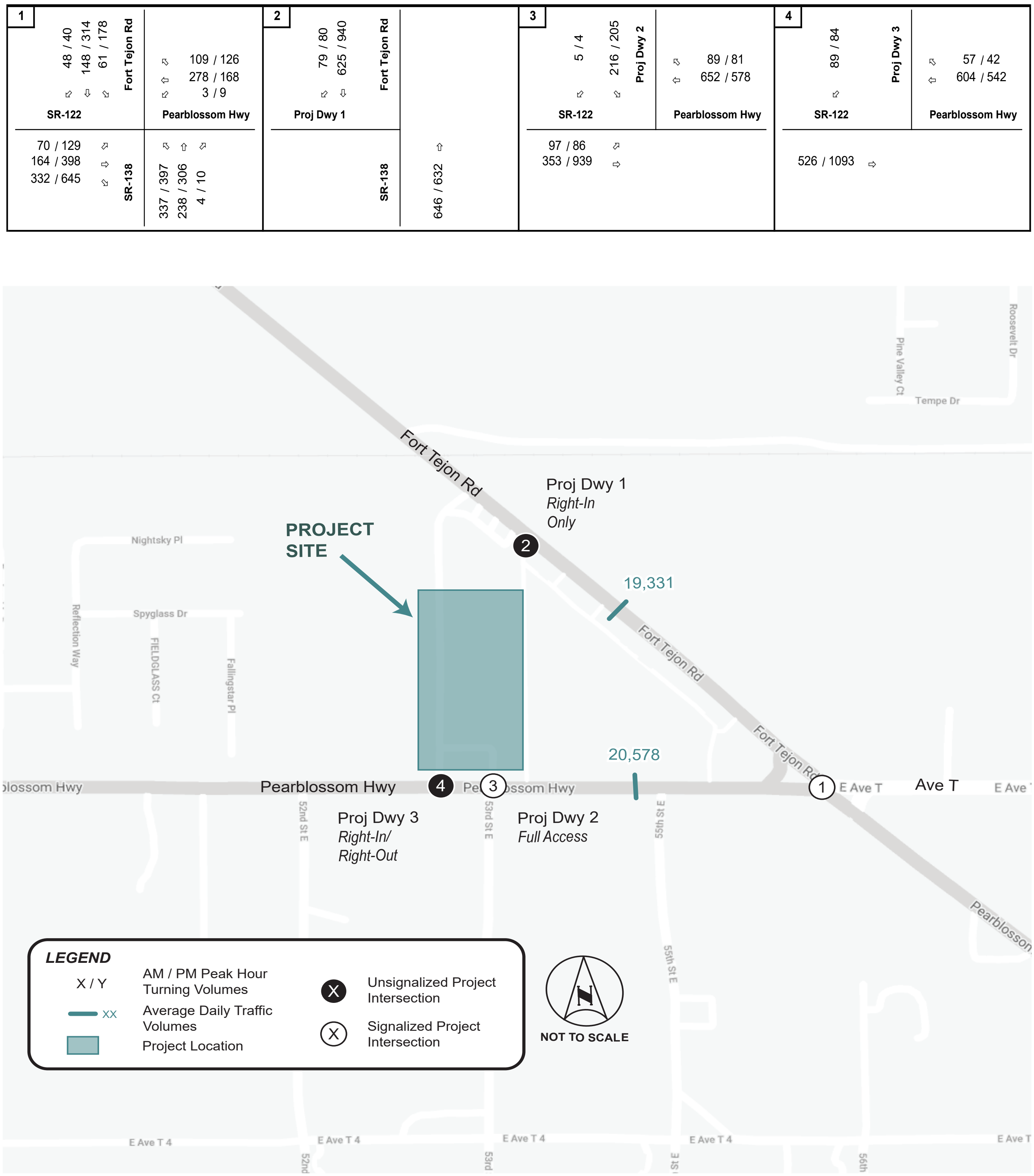


TABLE 9
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2022 PLUS PROJECT CONDITIONS

Int. #	Intersection	AM Peak Hour						PM Peak Hour					
		Without Project		With Project		Change in Delay	Deficiency?	Without Project		With Project		Change in Delay	Deficiency?
		Delay	LOS	Delay or ICU (a)	LOS			Delay	LOS	Delay or ICU	LOS		
1	Fort Tejon Rd/ SR-138 and Pearblossom Hwy	22.0	C	26.0	D	4.00	No	45.6	**E**	62.8	**E**	17.20	Yes
2	Fort Tejon Rd/ SR-138 and Project Dwy 1	FUTURE INTERSECTION		0.0	A	–	No	FUTURE INTERSECTION		0.0	A	–	No
3	Proj Dwy 2 and Pearblossom Hwy	FUTURE INTERSECTION		0.43	A	–	No	FUTURE INTERSECTION		0.46	B	–	No
4	Proj Dwy 3 and Pearblossom Hwy	FUTURE INTERSECTION		11.4	B	–	No	FUTURE INTERSECTION		11.0	B	–	No

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service
(a) Intersection operation at signalized intersections is expressed in average delay in seconds per vehicle. Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach. ICU is shown for Interseciton #3 and delay is shown for remaining intersections.

TABLE 10
SUMMARY OF ROADWAY SEGMENT ANALYSIS
OPENING YEAR 2022 PLUS PROJECT

ROADWAY SEGMENT	ROADWAY CLASSIFICATION	LOS E CAPACITY[1]	OPENING YEAR 2022			LOS E CAPACITY[1]	OPENING YEAR 2022 PLUS PROJECT		
			ADT	V/C RATIO	LOS		ADT	V/C RATIO	LOS
Fort Tejon Road (SR-138)									
North of Pearblossom Highway	4-Lane Regional Arterial	36,000	17,509	0.486	A	36,000	19,331	0.537	A
Pear Blossom Hwy									
West of Fort Tejon	4-Lane Regional Arterial	36,000	16,545	0.460	A	36,000	20,578	0.572	A

Notes:
[1] Source: City of Palmdale Circulation Element
LOS = Level of Service
ADT = Average Daily Traffic
PCE = Passenger Car Equivalent
V/C = Volume-to-Capacity

PROJECT OPENING YEAR 2022 PLUS CUMULATIVE PROJECT TRAFFIC CONDITIONS

Project Opening Year 2022 Plus Cumulative Project Traffic Conditions

Project Opening Year 2022 Plus Cumulative Project Traffic Conditions were developed by applying an annual growth rate of 2.85% per year to Existing conditions to account for background ambient traffic growth and the addition of nearby "Cumulative Project" that are assumed to be open and operating at the time of the project opening year. The resulting peak hour turning movement volumes at the study locations are shown in **Figure 13**.

Intersection and Roadway Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours for the Project Opening Year 2022 Plus Cumulative Project Traffic condition. The results are shown on **Table 11**. Intersection analysis worksheets for this scenario are provided in ***Appendix C***.

Review of this table indicates that the following intersection is projected to operate at Level of Service D or worse:

- #1 Fort Tejon Road/SR-138 at Pearblossom Highway – LOS E, PM Peak Hour

Roadway Level of Service analysis was conducted using the analysis procedures and assumptions described previously in this report. As shown in **Table 12**, all study roadway segments are projected to operate at acceptable Level of Service under Project Opening Year 2022 Plus Cumulative Project Traffic Conditions.

FIGURE 13 - Opening Year 2022 Plus Cumulative Traffic Volumes

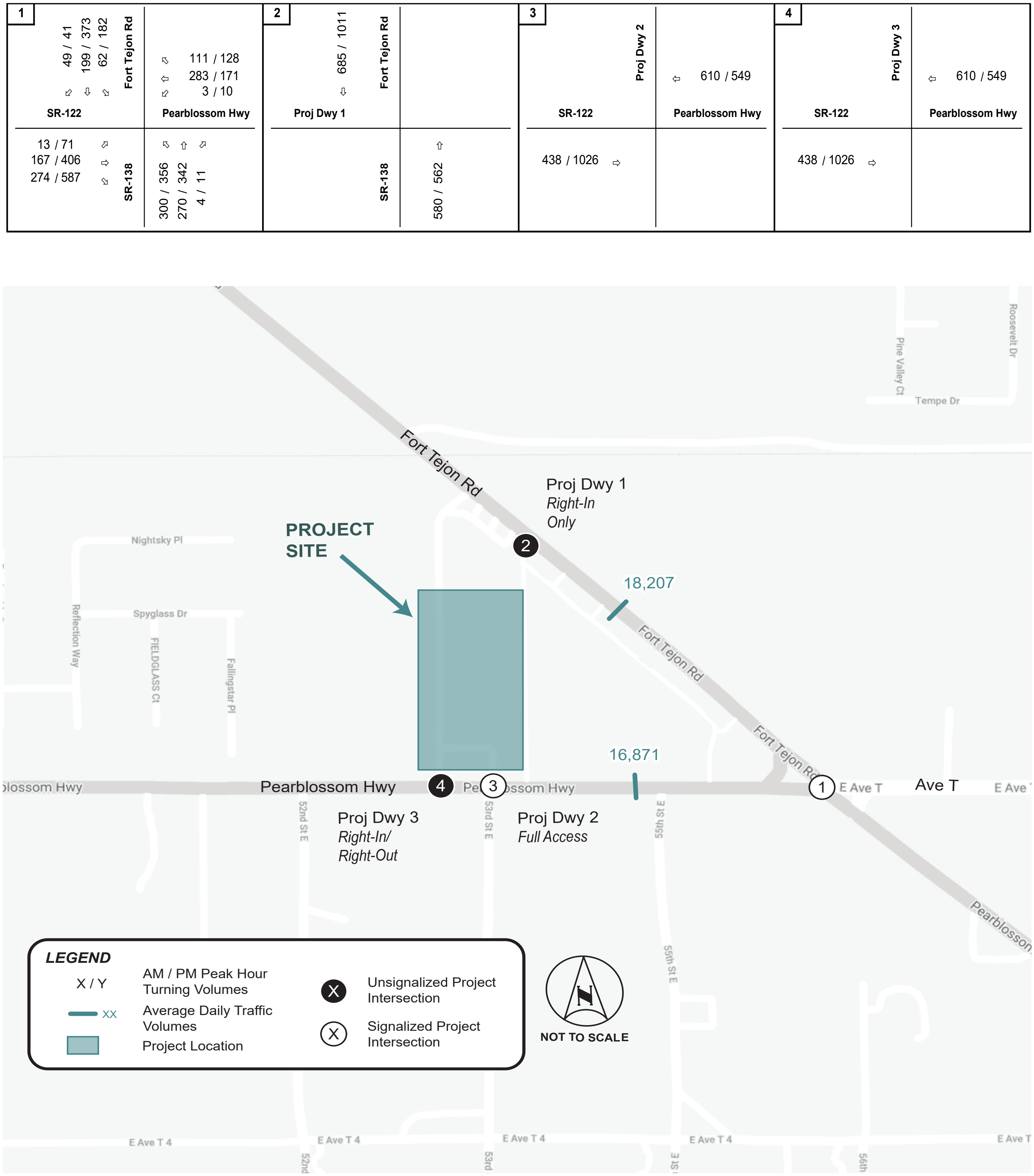


TABLE 11
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2022 PLUS CUMULATIVE PROJECTS

Int. #	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (a)	LOS	Delay	LOS
1	Fort Tejon Rd/ SR-138 and Pearblossom Hwy	Signal	22.2	C	48.5	**E**
2	Fort Tejon Rd/ SR-138 and Project Dwy 1	Unsignalized, Right-In Only	FUTURE INTERSECTION			
3	Proj Dwy 2 and Pearblossom Hwy	Signal	FUTURE INTERSECTION			
4	Proj Dwy 3 and Pearblossom Hwy	One-Way Stop Controlled, Right-In/Right-Out	FUTURE INTERSECTION			

Note:

(a) Intersection operation at signalized intersections is expressed in average delay in seconds per vehicle. Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

TABLE 12
SUMMARY OF ROADWAY SEGMENT ANALYSIS OPENING YEAR 2022 PLUS CUMULATIVE PROJECTS

ROADWAY SEGMENT	ROADWAY CLASSIFICATION	LOS E CAPACITY[1]	OPENING YEAR 2022 PLUS CUMULATIVE PROJECTS		
			ADT (PCE)	V/C RATIO	LOS
Fort Tejon Road (SR-138)					
North of Pearblossom Highway	4-Lane Regional Arterial	36,000	18,207	0.506	A
Pear Blossom Hwy					
West of Fort Tejon	4-Lane Regional Arterial	36,000	16,871	0.469	A

Notes:
[1] Source: City of Palmdale Circulation Element
LOS = Level of Service
ADT = Average Daily Traffic
PCE = Passenger Car Equivalent
V/C = Volume-to-Capacity

Project Opening Year 2022 Plus Cumulative Projects Plus Project Traffic Conditions

Project-related traffic was added to the Project Opening Year 2022 Plus Cumulative Project Traffic volumes. Project Opening Year 2022 Plus Cumulative Project Plus Project Traffic at study intersections are shown on **Figure 14**.

Intersection and Roadway Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours for the Project Opening Year 2022 Plus Cumulative Projects Plus Project Traffic condition. The results are shown on **Table 13**. Intersection analysis worksheets for this scenario are provided in ***Appendix C***.

Review of this table indicates that the following study intersection would operate at an unacceptable Level of Service during the peak hours:

- #1: Fort Tejon Rd/SR-138 and Pearblossom Hwy – LOS D, AM Peak Hour; LOS E, PM Peak Hour.

Roadway Level of Service analysis was conducted using the analysis procedures and assumptions described previously in this report. As shown in **Table 14**, all study roadway segments are projected to operate at acceptable Level of Service under Project Opening Year 2022 Plus Cumulative Project Plus Project Traffic Conditions.

FIGURE 14 - Opening Year 2022 Plus Cumulative Plus Project Traffic Volumes

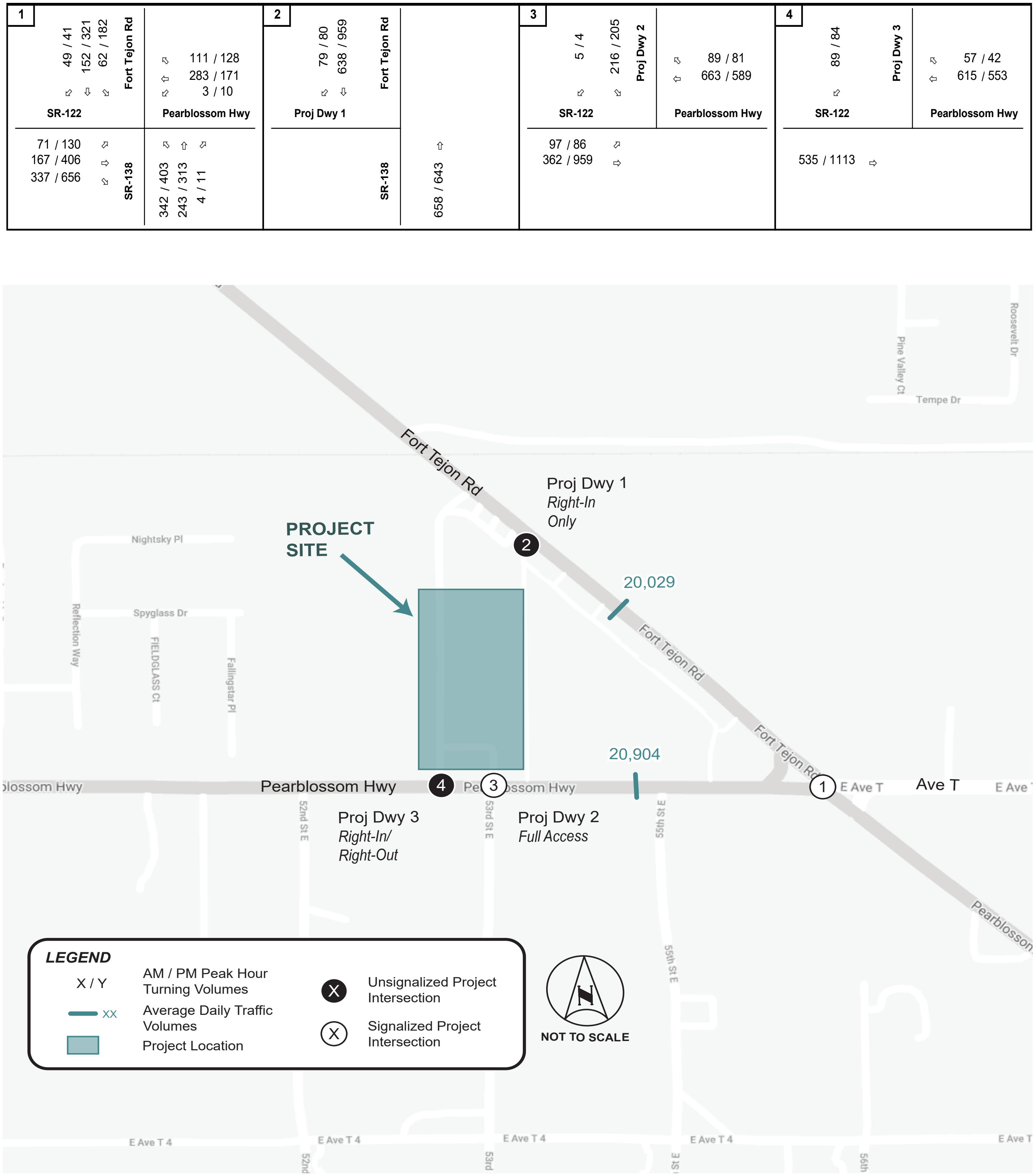


TABLE 13
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2022 PLUS CUMULATIVE PROJECTS PLUS PROJECT CONDITIONS

Int. #	Intersection	AM Peak Hour						PM Peak Hour					
		Without Project		With Project		Change in Delay	Deficiency?	Without Project		With Project		Change in Delay	Deficiency?
		Delay	LOS	Delay or ICU (a)	LOS			Delay	LOS	Delay or ICU	LOS		
1	Fort Tejon Rd/ SR-138 and Pearblossom Hwy	22.0	C	26.4	D	4.40	Yes	45.6	**E**	66.1	**E**	20.50	Yes
2	Fort Tejon Rd/ SR-138 and Project Dwy 1	FUTURE INTERSECTION		0.0	A	–	No	FUTURE INTERSECTION		0.0	A	–	No
3	Proj Dwy 2 and Pearblossom Hwy	FUTURE INTERSECTION		0.43	A	–	No	FUTURE INTERSECTION		0.46	B	–	No
4	Proj Dwy 3 and Pearblossom Hwy	FUTURE INTERSECTION		11.5	B	–	No	FUTURE INTERSECTION		11.0	B	–	No

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service

(a) Intersection operation at signalized intersections is expressed in average delay in seconds per vehicle. Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach. ICU is shown for Interseciton #3 and delay is shown for remaining intersections.

TABLE 14
SUMMARY OF ROADWAY SEGMENT ANALYSIS
OPENING YEAR 2022 PLUS CUMULATIVE PROJECTS PLUS PROJECT

ROADWAY SEGMENT	ROADWAY CLASSIFICATION	LOS E CAPACITY[1]	OPENING YEAR 2022 PLUS OTHER PROJECTS			LOS E CAPACITY[1]	OPENING YEAR 2022 PLUS CUMULATIVE PROJECTS PLUS PROJECT		
			ADT	V/C RATIO	LOS		ADT	V/C RATIO	LOS
Fort Tejon Road (SR-138)									
North of Pearblossom Highway	4-Lane Regional Arterial	36,000	18,207	0.506	A	36,000	20,029	0.556	A
Pear Blossom Hwy									
West of Fort Tejon	4-Lane Regional Arterial	36,000	16,871	0.469	A	36,000	20,904	0.581	A

Notes:
[1] Source: City of Palmdale Circulation Element
LOS = Level of Service
ADT = Average Daily Traffic
PCE = Passenger Car Equivalent
V/C = Volume-to-Capacity

IMPROVEMENT MEASURES

Project Opening Year 2022 Improvement Measures

Based on the Level of Service standards and deficiency criteria discussed previously, the project-related deficiencies would occur at the following intersections under Project Opening Year 2022 Plus Project conditions:

- #1: Fort Tejon Rd/SR-138 and Pearblossom Hwy – LOS D, AM Peak Hour; LOS E, PM Peak Hour.

Intersection operations before and after improvement measures for the above intersections are shown in **Table 15** and are summarized below:

#1 Fort Tejon Rd / SR-138 and Pearblossom Hwy: With the addition of project trips, this intersection is projected to degrade from LOS C to LOS D during the AM peak hour and from LOS E to a worse LOS E during the PM peak hour. A potential improvement at this intersection would be to re-optimize signal timings and provide an eastbound right-turn overlap phase. With this improvement in place, the intersection of Fort Tejon Rd / SR-138 and Pearblossom Hwy is projected to operate at LOS C during the AM and PM peak hours.

The project would make a fair share contribution to the above improvements as shown in **Table 16**

TABLE 15
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2022 PLUS PROJECT CONDITIONS - IMPROVEMENT

Int. #	Intersection	AM Peak Hour				PM Peak Hour				Description
		With Project		With Project - With Improvement		With Project		With Project - With Improvement		
		Delay (a)	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
1	Fort Tejon Rd/ SR-138 and Pearblossom Hwy	26.0	D	22.7	C	62.8	E	33.1	C	Optimize cycle length and signal timings, provide an eastbound right-turn overlap phase

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service

(a) Intersection operation at signalized intersections is expressed in average delay in seconds per vehicle. Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

TABLE 16

SUMMARY OF PROJECT FAIR SHARE FOR OPENING YEAR PLUS PROJECT IMPROVEMENTS

Intersection	AM Peak Hour					PM Peak Hour				
	Total Volume		Total	Project		Total Volume		Total	Project	
	2020	2022	Growth	Trips	%-age	2020	2022	Growth	Trips	%-age
#1 Fort Tejon Rd/SR-138 and Pearblossom Hwy	1,641	1,816	175	113	64.6%	2,532	2,742	210	116	55.2%

Project Opening Year 2022 Plus Cumulative Projects Improvement Measures

Based on the Level of Service standards and deficiency criteria discussed previously, the project-related deficiencies would occur at the following intersections under Project Opening Year 2022 Plus Cumulative Projects Plus Project Traffic Conditions:

- #1: Fort Tejon Rd/SR-138 and Pearblossom Hwy – LOS E, AM peak Hour; LOS E, PM Peak Hour.

Intersection operations before and after improvement measures for the above intersections are shown in **Table 17** and are summarized below:

#1 Fort Tejon Rd / SR-138 and Pearblossom Hwy: With the addition of project trips, this intersection is projected to degrade LOS C to LOS D during the AM peak hour and from LOS E to a worse LOS E during the PM peak hour. A potential improvement at this intersection would be to re-optimize signal timings and provide an eastbound right-turn overlap phase. With this improvement in place, the intersection of Fort Tejon Rd / SR-138 and Pearblossom Hwy is projected to operate at LOS C during the AM and PM peak hours.

The project would make a fair share contribution to the above improvements as shown in **Table 18**.

TABLE 17
SUMMARY OF INTERSECTION OPERATION
OPENING YEAR 2022 PLUS CUMULATIVE PROJECTS PLUS PROJECT CONDITIONS - IMPROVEMENT

Int. #	Intersection	AM Peak Hour				PM Peak Hour				Description
		With Project		With Project - With Improvement		With Project		With Project - With Improvement		
		Delay (a)	LOS	Delay	LOS	Delay	LOS	Delay	LOS	
1	Fort Tejon Rd/ SR-138 and Pearblossom Hwy	26.4	D	23.1	C	66.1	E	34.4	C	Optimize cycle length and signal timings, provide an eastbound right-turn overlap phase

Notes:
- Bold values indicate intersections operating at an unacceptable Level of Service

(a) Intersection operation at signalized intersections is expressed in average delay in seconds per vehicle. Delay values for unsignalized intersections represent the average vehicle delay on the worst (highest delay) intersection approach.

TABLE 18

SUMMARY OF PROJECT FAIR SHARE FOR OPENING YEAR 2022 PLUS CUMULATIVE PROJECTS PLUS PROJECT IMPROVEMENTS

Intersection	AM Peak Hour					PM Peak Hour				
	Total Volume		Total Growth	Project Trips	%-age	Total Volume		Total Growth	Project Trips	%-age
	2020	2022+CP				2020	2022+CP			
#1 Fort Tejon Rd/SR-138 and Pearblossom Hwy	1,641	1,848	207	113	54.6%	2,532	2,794	262	116	44.3%

SITE ACCESS ANALYSIS

Vehicular access for the project site would be via two driveways on Pearblossom Highway and one driveway on Fort Tejon Road. The driveway on Fort Tejon Road (Driveway 1) would be right-in-only. The eastern driveway on Pearblossom Highway (Driveway 2) would operate as a full-access signalized intersection with Pearblossom Highway. The western driveway on Pearblossom Highway (Driveway 3) would operate as a right-in/right-out only driveway.

As shown on the project site plan, ingress right turn pockets would be provided for all driveways.

Driveway Queueing

95th Percentile ingress and egress driveway queueing was evaluated at Intersection #3 Project Driveway 2 at Pearblossom Highway and Intersection #4 Project Driveway 3 at Pearblossom Highway using Synchro software and HCM 6th Edition methodology. As the project driveway intersections are analyzed using PCE volumes, the estimated queue lengths reflect the projected mix of passenger vehicles and trucks. Ingress and egress queue lengths are shown in **Table 19**.

As shown in Table 19, all inbound and outbound queueing is projected to be contained within the provided storage space at the project driveways.

Pedestrian, Bicycle, and Transit Access

The LA County Bikeways Map indicates that there are currently no designated bikeways within the project study area. The project would construct pedestrian sidewalks along project frontage on Pearblossom Highway. The project site is accessible by transit via Antelope Valley Transit Authority bus Route 82, which as stops near the project site at the Pearblossom Highway and Fort Tejon Road intersection.

TABLE 19
95th PERCENTILE PROJECT DRIVEWAY QUEUEING

Intersection		Movement	Avaiable Storage (ft)	Peak Hour	Opening Year Plus Cumulative Projects Plus Project Queues (ft)
3	Project Driveway 2 and Pearblossom Highway	EBL	250	AM	75
				PM	54
		WBR	240	AM	18
				PM	16
		SB	200	AM	69
				PM	68
4	Project Driveway 3 and Pearblossom Highway	SB	50	AM	25
				PM	25

SUMMARY OF FINDINGS AND CONCLUSIONS

- The project is located on the north side of Pearblossom Highway (State Route 122 (SR-122)) east of Fallingstar Place in the City of Palmdale.
- The project consists of the construction of a truck stop with eight truck fueling positions and truck stop facilities, a gas station with a convenience market and 16 fueling positions, and a 1,852 square foot fast-food restaurant without a drive-through.
- The project is estimated to generate 5,726 PCE trips on a daily basis, with 632 trips in the morning peak hour, and 582 trips in the evening peak hour.
- Vehicular access for the project site would be via two driveways on Pearblossom Highway and one driveway on Fort Tejon Road. The driveway on Fort Tejon Road (Driveway 1) would be right-in-only. The eastern driveway on Pearblossom Highway (Driveway 2) would operate as a full-access signalized intersection with Pearblossom Highway. The western driveway on Pearblossom Highway (Driveway 3) would operate as a right-in/right-out only driveway.
- Based on the City of Palmdale's Level of Service standards, project-related deficiencies would occur at the following intersections under Opening Year 2022 plus Project conditions:
    - #1: Fort Tejon Rd/SR-138 and Pearblossom Hwy – LOS E, AM Peak Hour; LOS E, PM Peak Hour.
- Based on the City of Palmdale's Level of Service standards, project-related deficiencies would occur at the following intersections under Project Opening Year 2022 plus Cumulative Projects Plus Project conditions:
    - #1: Fort Tejon Rd/SR-138 and Pearblossom Hwy – LOS E, AM Peak Hour; LOS E, PM Peak Hour.
- The following improvements are recommended to address project-related deficiencies under Opening Year 2022 Plus Project and Opening Year Plus Cumulative Project Plus Project conditions:
    - #1: Fort Tejon Rd/SR-138 and Pearblossom Hwy – Optimize cycle length and signal timings, provide an eastbound right-turn overlap phase
- The project would pay a fair share contribution towards the above improvements.

APPENDIX A
SCOPING AGREEMENT

TRAFFIC STUDY – MEMORANDUM OF UNDERSTANDING (MOU)

This MOU acknowledges that the traffic study for the following project will be prepared in accordance with the latest version of the County of Los Angeles Traffic Study Policies and Procedures:

Project Name: Pilot Travel Center

Project Address: Pearblossom Highway west of Fort Tejon Road (SR-138)

Project Description: Truck Stop with 8 fueling positions; Convenience Market Gas Station with 16 fueling positions, and 1,852 SF Fast-food Restaurant without Drive-through (Site Plan – **ATTACHMENT 1**)

1. Trip Geographic Distribution: N % S % E % W %

(Exhibit of trip distribution attached – **ATTACHMENT 2**)

2. Trip Generation Source: ITE Trip Generation Manual (10th Edition); Data provided by the Applicant for the Truck Stop portion of the project.

Trip generation is attached with a description of the proposed land uses, rates, estimated morning and afternoon peak hour volumes, proposed trip credits, etc.
(Trip Generation table attached – **ATTACHMENT 3**)

	In	Out	Total
AM Trips (Net New)	322	310	632
PM Trips (Net New)	289	293	582

Trip Credits

	Yes	No
Transit Usage		X
Transportation Demand Management		X
Existing Active Land Use		X
Previous Land Use		X
Internal Trip	X	
Pass-by Trip	X	
Diverted Link Trip	X	

Project Completion Year: 2022 Annual Background Growth Rate: 1.85% (per LA County CMP)

Related Projects: Related Project list will be requested by the consultant.

3. Study Locations: (NOTE: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies are received.) See **ATTACHMENT 2**

Study Intersections

1. Fort Tejon Road (SR-138) / Pearblossom Highway (SR-122)

Study Roadway Segments

1.	Fort Tejon Road (SR-138): North of Pearblossom Highway
2.	Pearblossom Highway: West of Fort Tejon Road

4. Specific issues to be addressed in the Study:

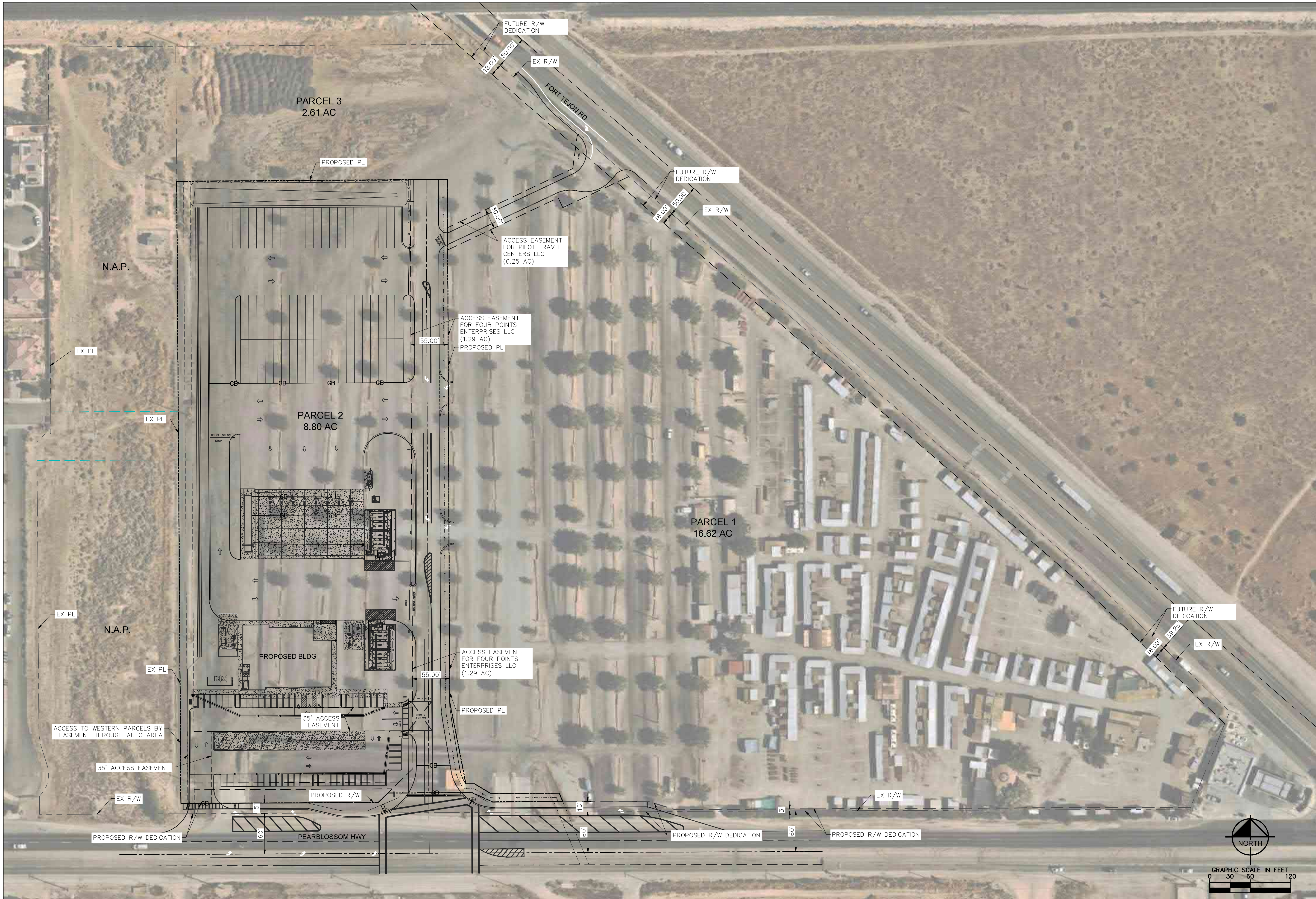
Refer to **Attachment 4** for VMT analysis assumptions

	Consultant	Developer
Name:	Kimley-Horn and Associates, Inc.	Pilot Flying J
Address:	765 The City Drive # 200	5508 Lonas Dr
	Orange, CA 92868	Knoxville, TN 37909
Telephone:	(714) 939-1030	

Consultant's Representative Date

Approved by:

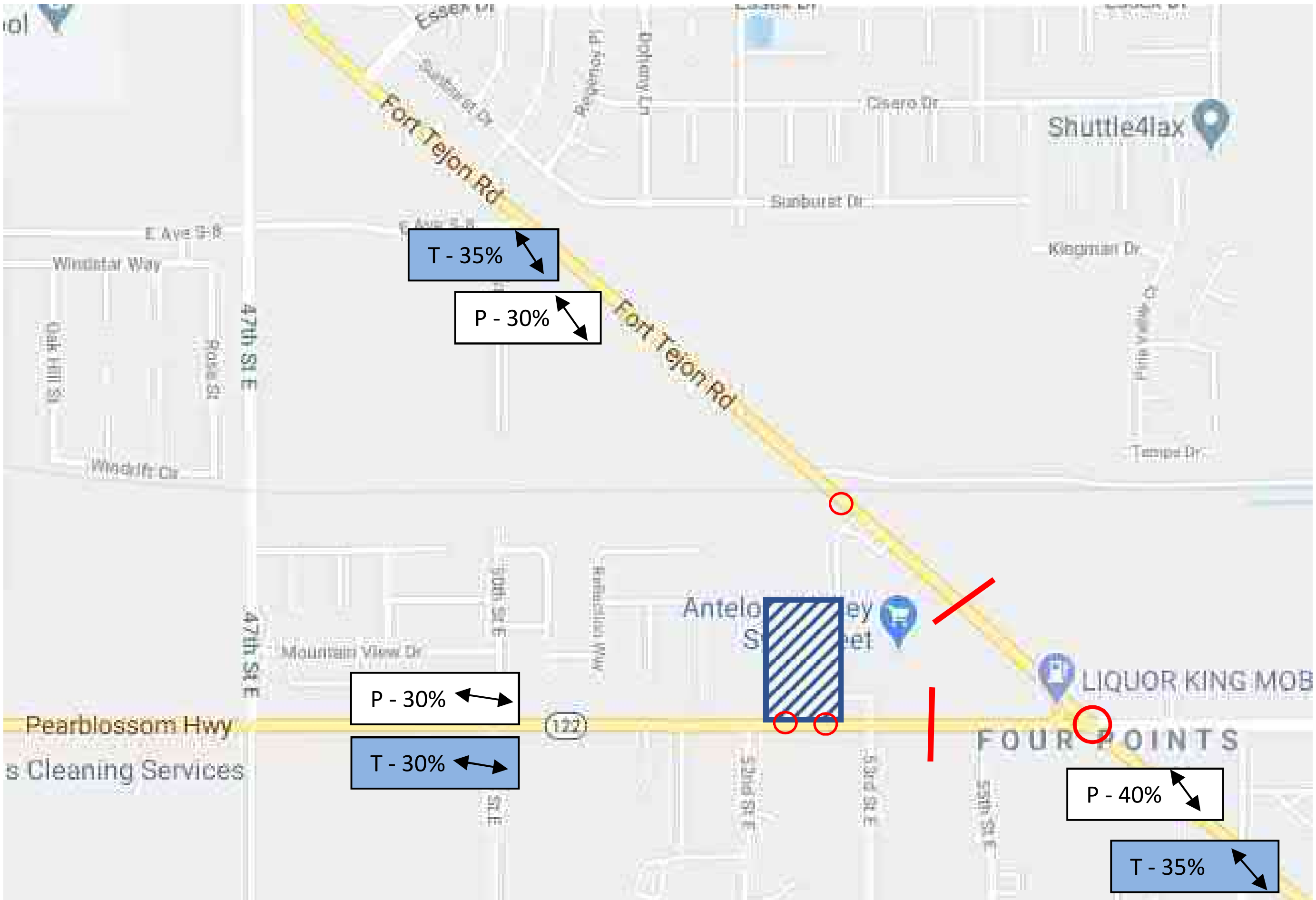
City Representative Date



TPM EXHIBIT
PALMDALE PILOT
1/5/2021

ATTACHMENT 2

PILOT TRAVEL CENTER – STUDY LOCATIONS



PROJECT SITE

SUGGESTED STUDY INTERSECTIONS

PROJECT DRIVEWAYS

P - XX% PASSENGER CAR DISTRIBUTION

T - XX% TRUCK DISTRIBUTION

SUGGESTED ROADWAY SEGMENT

ATTACHMENT 3 - TRIP GENERATION TABLES

Table 1 - Trip Generation Rates

Land Use	Source	Units	Daily Trip Rate	AM Peak Hour Rate		PM Peak Hour Rate	
				Trip Rate	In : Out	Trip Rate	In : Out
Fast-Foot Restaurant w/o Drive-Through Window	ITE Code 933	1.852 ksf	346.23	25.1	60% : 40%	28.34	50% : 50%
Super Convenience Market/Gas Station	ITE Code 960	16 FP	230.52	28.08	50% : 50%	22.96	50% : 50%
Truck Stop	Data (a)/ITE Code 950	8 Truck FP	77.78	7.18	51% : 49%	8.41	49% : 51%

Notes

KSF = thousand square feet, FP = Fueling Positions

AM and/or PM rates correspond to peak of adjacent street traffic

Trip Generation data for ITE Codes from *ITE Trip Generation, 10th Edition*

(a) Daily Trip Generation data received from Pilot

Table 2 - Project Passenger Car Trip Generation

Proposed Land Use (a)	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Fast-Food Restaurant without Drive-Through (b)	1.852 ksf	641	28	18	46	26	26	52
Internal Capture (c) (Daily: 10%, AM: 7%, PM: 9%)		*-64*	*-2*	*-1*	*-3*	*-3*	*-2*	*-5*
Net Driveway Trips – Fast-food Restaurant without Drive-Through		577	26	17	43	23	24	47
Pass-By Trips (d) (Daily: 50%, AM: 49%, PM: 50%)		*-289*	*-13*	*-8*	*-21*	*-12*	*-12*	*-24*
Diverted Trips (e) (Daily: 25%, AM: 28%, PM: 23%)		*-144*	*-6*	*-6*	*-12*	*-6*	*-5*	*-11*
Net Primary Trips – Fast-food Restaurant without Drive-Through		***144***	***7***	***3***	***10***	***5***	***7***	***12***
Super Convenience Market/Gas Station (b)	16 Fueling Positions	3,688	225	224	449	184	183	367
Internal Capture (c) (Daily: 10%, AM: 7%, PM: 9%)		*-369*	*-16*	*-15*	*-31*	*-17*	*-16*	*-33*
Net Driveway Trips – Gas Station with Convenience Market		3,319	209	209	418	167	167	334
Pass-By Trips (d) (Daily: 59%, AM: 62%, PM: 56%)		*-1,958*	*-130*	*-129*	*-259*	*-94*	*-93*	*-187*
Diverted Trips (e) (Daily: 26%, AM: 21%, PM: 31%)		*-863*	*-44*	*-44*	*-88*	*-52*	*-52*	*-104*
Net Primary Trips – Super Convenience Market/Gas Station		***498***	***35***	***36***	***71***	***21***	***22***	***43***
Net Passenger Car Trips (f)	***Net Driveway Trips***	***3,896***	***235***	***226***	***461***	***190***	***191***	***381***
	Net Primary Trips	***642***	***42***	***39***	***81***	***26***	***29***	***55***

Notes
(a) Passenger Car trips include trips to 2.469 ksf Fast-Food Restaurant with drive-thru and a 12 fueling position Super Convenience Market/Gas Station.
(b) Trip Generation data from ITE Trip Generation Manual, 10th Edition
(c) Internal capture rates from ITE Trip Generation Handbook, 3rd Edition NCHRP 684 Interna Trip Capture Estimation Tool
(d) Pass-by rates from ITE Trip Generation Handbook, 3rd Edition for ITE LU 934 Fast-Food Restaurant With Drive-Through Window and LU 945 Gasoline/Service Station With Convenience Market
(e) Diverted trip rates from ITE Trip Generation Handbook, 3rd Edition for ITE LU 934 Fast-Food Restaurant With Drive-Through Window and LU 945 Gasoline/Service Station With Convenience Market
(f) Net passenger car trips are the sum of trips generated by the Fast-Food Restaurant without drive-thru land use and Super Convenience Market/Gas Station land use

Table 3 - Truck Trip Generation

Proposed Land Use	Units	Daily Trips (a)	AM Peak Hour (b)			PM Peak Hour (b)		
			In	Out	Total	In	Out	Total
Truck Stop	8 Fueling Positions	622	29	28	57	33	34	67
	Internal Capture (c) 0%	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Net Driveway Trips – Truck Stop	622	29	28	57	33	34	67
	Net Driveway Trips in PCE (PCE=3.0)	1,866	87	84	171	99	102	201
	Pass-By Trips (d) (Daily: 5%, AM: 5%, PM: 5%)	*-31*	*-2*	*-1*	*-3*	*-1*	*-2*	*-3*
	Diverted Trips (e) (Daily: 60%, AM: 62%, PM: 56%)	*-373*	*-18*	*-17*	*-35*	*-19*	*-19*	*-38*
	Net Primary Trips – Truck Stop	***218***	***9***	***10***	***19***	***13***	***13***	***26***
	Net Primary Trips in PCE (PCE=3.0)	***654***	***27***	***30***	***57***	***39***	***39***	***78***

Notes
(a) Truck trips include trips to the Truck Stop land use portion only, using daily trip information obtained from similar faclilities
(b) Peak hour information estimated using peak hour percentages from ITE Trip Generation Manual, 10th Edition
(c) No internal capture was assumed for the Truck Stop land use, as a truck stop is assumed to include a variety of services
(d) As there was no supporting data available to define the number of pass-by trips, pass-by rates were estimated to be 5%
(e) As there was no supporting data available to define the number of pass-by trips, diverted rates were estimated to be similar to a Super Convenience Market with Gas Station

Table 4 - Total Project Trip Generation

	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Total Primary Trips							
Fast Food w/o Drive-Through	144	7	3	10	5	7	12
Super Convenience Market/Gas Station	498	35	36	71	21	22	43
Truck Stop (PCE = 3.0)	654	27	30	57	39	39	78
Total Primary Trip Generation	**1,296**	**69**	**69**	**138**	**65**	**68**	**133**
Total Driveway Trips							
Fast Food w/o Drive-Through	577	26	17	43	23	24	47
Super Convenience Market/Gas Station	3,319	209	209	418	167	167	334
Truck Stop (PCE = 3.0)	1,866	87	84	171	99	102	201
Total Driveway Trip Generation	**5,762**	**322**	**310**	**632**	**289**	**293**	**582**

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	Kimley-Horn and Associates, Inc.
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**Daily Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		-	0	0	0	0
Retail	960	16	16 FP	3,690	1,845	1,845
Restaurant	933	3	1852 SF	642	321	321
Cinema/Entertainment		-	Screen(s)	0	0	0
Residential		-	Dwelling Unit(s)	0	0	0
Hotel		-	Room(s)	0	0	0
All Other Land Uses[2]		-	0	0	0	0
				4,332	2,166	2,166

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses[2]	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		161	0	0	0
Restaurant	0	45		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	4,332	2,166	2,166
Internal Capture Percentage	10%	10%	10%
External Vehicle-Trips[5]	3,920	1,960	1,960
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	2%	9%
Restaurant	50%	14%
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.
[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).
[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
[6]Person-Trips
*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	Kimley-Horn and Associates, Inc.
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		-	0	0	0	0
Retail	960	16	16 FP	449	225	224
Restaurant	933	3	1852 SF	46	28	18
Cinema/Entertainment		-	Screen(s)	0	0	0
Residential		-	Dwelling Unit(s)	0	0	0
Hotel		-	Room(s)	0	0	0
All Other Land Uses[2]		-	0	0	0	0
				495	253	242

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses[2]	1.00	0%	0%	1.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		14	0	0	0
Restaurant	0	3		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	495	253	242
Internal Capture Percentage	7%	7%	7%
External Vehicle-Trips[5]	461	236	225
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	1%	6%
Restaurant	50%	17%
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	Kimley-Horn and Associates, Inc.
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		-	0	0	0	0
Retail		16	16 FP	367	184	183
Restaurant		2	1852 SF	52	26	26
Cinema/Entertainment		-	Screen(s)	0	0	0
Residential		-	Dwelling Unit(s)	0	0	0
Hotel		-	Room(s)	0	0	0
All Other Land Uses[2]		-	0	0	0	0
				419	210	209

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Land Uses[2]	1.00	0%	0%	1.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		8	0	0	0
Restaurant	0	11		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	419	210	209
Internal Capture Percentage	9%	9%	9%
External Vehicle-Trips[5]	381	191	190
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	6%	4%
Restaurant	31%	42%
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.
[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).
[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made
[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.
[6]Person-Trips
*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Attachment 4

SB 743 VMT Assessment Approach

The project includes a truck stop with 8 fueling positions, convenience market gas station with 16 fueling positions, and 1,852 SF of fast-food restaurant without drive-through. The Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018), prepared by the governor's Office of Planning and Research (OPR), identifies that by adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT.

Generally, retail development including stores less than 50,000 square feet might be considered local-serving. The proposed project is less than 50,000 square feet and is not anticipated to lead to longer trips, compared to shorter trips; thus, reducing VMT. The City may presume such development creates a less than significant transportation impact. As such, a qualitative VMT assessment consistent with recommendations in the OPR's Technical Advisory will be included in the traffic study.

APPENDIX B
EXISTING VOLUMES

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

City of Palmdale
N/S: Fort Tejon Road/Pearblossom Highway
E/W: Pearblossom Highway/Avenue T
Weather: Clear

File Name : PDEFOPEAM
Site Code : 99916371
Start Date : 6/28/2016
Page No : 1

Groups Printed- Total Volume

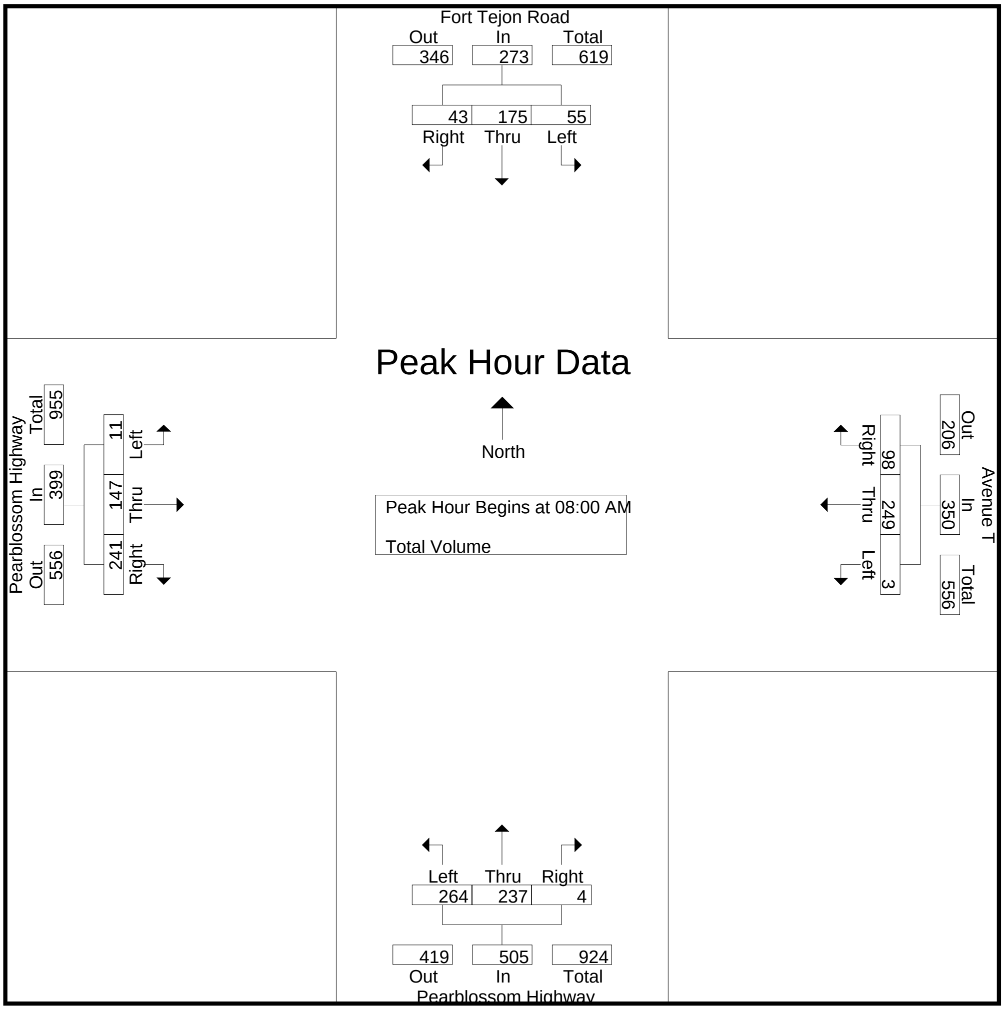
	Fort Tejon Road Southbound				Avenue T Westbound				Pearblossom Highway Northbound				Pearblossom Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	5	33	14	52	1	84	20	105	64	44	0	108	3	33	53	89	354
07:15 AM	8	35	15	58	0	92	11	103	56	62	0	118	2	22	51	75	354
07:30 AM	12	35	14	61	0	90	20	110	70	47	1	118	2	31	51	84	373
07:45 AM	9	36	6	51	1	77	15	93	63	66	0	129	4	32	42	78	351
Total	34	139	49	222	2	343	66	411	253	219	1	473	11	118	197	326	1432
08:00 AM	14	45	9	68	0	70	28	98	70	62	0	132	4	32	54	90	388
08:15 AM	17	36	11	64	2	64	24	90	67	64	0	131	3	34	50	87	372
08:30 AM	11	44	11	66	1	63	23	87	61	62	2	125	3	39	65	107	385
08:45 AM	13	50	12	75	0	52	23	75	66	49	2	117	1	42	72	115	382
Total	55	175	43	273	3	249	98	350	264	237	4	505	11	147	241	399	1527
Grand Total	89	314	92	495	5	592	164	761	517	456	5	978	22	265	438	725	2959
Apprch %	18	63.4	18.6		0.7	77.8	21.6		52.9	46.6	0.5		3	36.6	60.4		
Total %	3	10.6	3.1	16.7	0.2	20	5.5	25.7	17.5	15.4	0.2	33.1	0.7	9	14.8	24.5	

	Fort Tejon Road Southbound				Avenue T Westbound				Pearblossom Highway Northbound				Pearblossom Highway 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	14	45	9	68	0	**70**	**28**	**98**	**70**	62	0	**132**	**4**	32	54	90	**388**
08:15 AM	**17**	36	11	64	**2**	64	24	90	67	**64**	0	131	3	34	50	87	372
08:30 AM	11	44	11	66	1	63	23	87	61	62	**2**	125	3	39	65	107	385
08:45 AM	13	**50**	**12**	**75**	0	52	23	75	66	49	2	117	1	**42**	**72**	**115**	382
Total Volume	55	175	43	273	3	249	98	350	264	237	4	505	11	147	241	399	1527
% App. Total	20.1	64.1	15.8		0.9	71.1	28		52.3	46.9	0.8		2.8	36.8	60.4		
PHF	.809	.875	.896	.910	.375	.889	.875	.893	.943	.926	.500	.956	.688	.875	.837	.867	.984

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

City of Palmdale
N/S: Fort Tejon Road/Pearblossom Highway
E/W: Pearblossom Highway/Avenue T
Weather: Clear

File Name : PDEFOPEAM
Site Code : 99916371
Start Date : 6/28/2016
Page No : 2



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

	08:00 AM				07:00 AM				07:45 AM				08:00 AM			
+0 mins.	14	45	9	68	**1**	84	**20**	105	63	**66**	0	129	**4**	32	54	90
+15 mins.	**17**	36	11	64	0	**92**	11	103	**70**	62	0	**132**	3	34	50	87
+30 mins.	11	44	11	66	0	90	20	**110**	67	64	0	131	3	39	65	107
+45 mins.	13	**50**	**12**	**75**	1	77	15	93	61	62	**2**	125	1	**42**	**72**	**115**
Total Volume	55	175	43	273	2	343	66	411	261	254	2	517	11	147	241	399
% App. Total	20.1	64.1	15.8		0.5	83.5	16.1		50.5	49.1	0.4		2.8	36.8	60.4	
PHF	.809	.875	.896	.910	.500	.932	.825	.934	.932	.962	.250	.979	.688	.875	.837	.867

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

City of Palmdale
N/S: Fort Tejon Road/Pearblossom Highway
E/W: Pearblossom Highway/Avenue T
Weather: Clear

File Name : PDEFOPEPM
Site Code : 99916371
Start Date : 6/28/2016
Page No : 1

Groups Printed- Total Volume

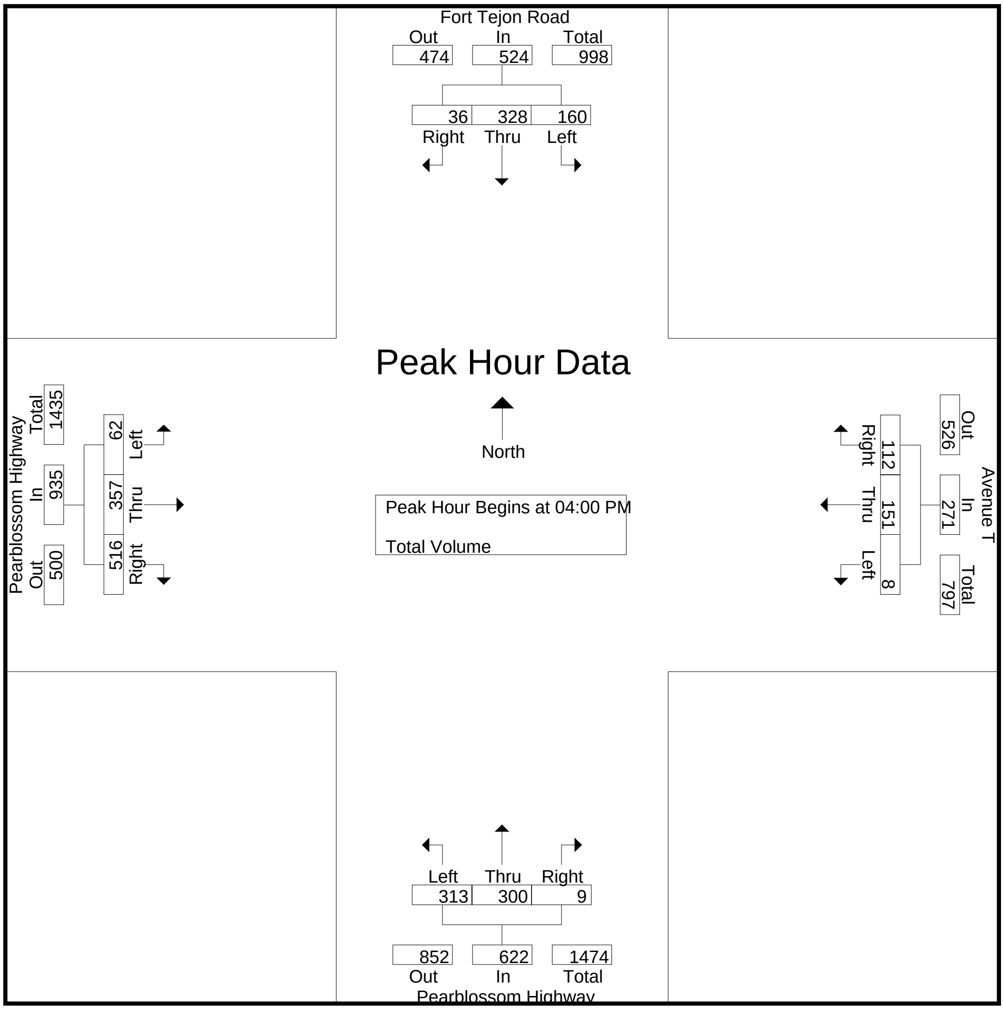
	Fort Tejon Road Southbound				Avenue T Westbound				Pearblossom Highway Northbound				Pearblossom Highway Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	35	81	9	125	1	45	20	66	92	73	2	167	11	82	138	231	589
04:15 PM	47	96	5	148	4	50	25	79	63	73	2	138	19	80	146	245	610
04:30 PM	40	83	8	131	1	29	37	67	74	75	1	150	8	84	127	219	567
04:45 PM	38	68	14	120	2	27	30	59	84	79	4	167	24	111	105	240	586
Total	160	328	36	524	8	151	112	271	313	300	9	622	62	357	516	935	2352
05:00 PM	39	72	13	124	2	45	21	68	74	80	0	154	17	110	114	241	587
05:15 PM	53	78	4	135	5	43	21	69	54	72	1	127	17	98	117	232	563
05:30 PM	47	79	4	130	0	32	21	53	86	90	1	177	20	84	118	222	582
05:45 PM	30	68	8	106	2	53	21	76	79	88	0	167	22	127	99	248	597
Total	169	297	29	495	9	173	84	266	293	330	2	625	76	419	448	943	2329
Grand Total	329	625	65	1019	17	324	196	537	606	630	11	1247	138	776	964	1878	4681
Apprch %	32.3	61.3	6.4		3.2	60.3	36.5		48.6	50.5	0.9		7.3	41.3	51.3		
Total %	7	13.4	1.4	21.8	0.4	6.9	4.2	11.5	12.9	13.5	0.2	26.6	2.9	16.6	20.6	40.1	

	Fort Tejon Road Southbound				Avenue T Westbound				Pearblossom Highway Northbound				Pearblossom Highway 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 04:00 PM																	
04:00 PM	35	81	9	125	1	45	20	66	**92**	73	2	**167**	11	82	138	231	589
04:15 PM	**47**	**96**	5	**148**	**4**	**50**	25	**79**	63	73	2	138	19	80	**146**	**245**	**610**
04:30 PM	40	83	8	131	1	29	**37**	67	74	75	1	150	8	84	127	219	567
04:45 PM	38	68	**14**	120	2	27	30	59	84	**79**	**4**	167	**24**	**111**	105	240	586
Total Volume	160	328	36	524	8	151	112	271	313	300	9	622	62	357	516	935	2352
% App. Total	30.5	62.6	6.9		3	55.7	41.3		50.3	48.2	1.4		6.6	38.2	55.2		
PHF	.851	.854	.643	.885	.500	.755	.757	.858	.851	.949	.563	.931	.646	.804	.884	.954	.964

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

City of Palmdale
N/S: Fort Tejon Road/Pearblossom Highway
E/W: Pearblossom Highway/Avenue T
Weather: Clear

File Name : PDEFOPEPM
Site Code : 99916371
Start Date : 6/28/2016
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				04:15 PM				04:45 PM				04:15 PM			
+0 mins.	35	81	9	125	**4**	**50**	25	**79**	84	79	**4**	167	19	80	**146**	**245**
+15 mins.	**47**	**96**	5	**148**	1	29	**37**	67	74	80	0	154	8	84	127	219
+30 mins.	40	83	8	131	2	27	30	59	54	72	1	127	**24**	**111**	105	240
+45 mins.	38	68	**14**	120	2	45	21	68	**86**	**90**	1	**177**	17	110	114	241
Total Volume	160	328	36	524	9	151	113	273	298	321	6	625	68	385	492	945
% App. Total	30.5	62.6	6.9		3.3	55.3	41.4		47.7	51.4	1		7.2	40.7	52.1	
PHF	.851	.854	.643	.885	.563	.755	.764	.864	.866	.892	.375	.883	.708	.867	.842	.964

Location: Palmdale
N/S: Fort Tejon Road/Pearblossom Highway
E/W: Pearblossom Highway/Avenue T

Date: 6/28/2016
Day: Tuesday

PEDESTRIANS

	North Leg Fort Tejon Road	East Leg Avenue T	South Leg Pearblossom Highway	West Leg Pearblossom Highway	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	2	0	0	0	2
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	2	0	0	0	2

	North Leg Fort Tejon Road	East Leg Avenue T	South Leg Pearblossom Highway	West Leg Pearblossom Highway	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	1	1
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	1

Location: Palmdale
N/S: Fort Tejon Road/Pearblossom Highway
E/W: Pearblossom Highway/Avenue T

Date: 6/28/2016
Day: Tuesday

BICYCLES

	North Leg Fort Tejon Road	East Leg Avenue T	South Leg Pearblossom Highway	West Leg Pearblossom Highway	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg Fort Tejon Road	East Leg Avenue T	South Leg Pearblossom Highway	West Leg Pearblossom Highway	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

DIST	RTE	R1	CNTY	PI	PM	PI	DESCRIPTION	BACK_PEAK_HOUR	BACK_PEAK_MADT	BACK_AADT	AHEAD_PEAK_HOUR	AHEAD_PEAK_MADT	AHEAD_AADT
07	138		LA		0	R	JCT. RTE. 5, BEGIN RIGHT ALIGN				410	2550	2225
07	138		LA		1.392	R	END RIGHT ALIGN	410	2550	2225			
07	138		LA		0	L	BEGIN LEFT ALIGN				410	2550	2225
07	138		LA		1.392	L	END LEFT ALIGN	410	2550	2225			
07	138		LA		1.711		GORMAN POST ROAD	810	5100	4450	550	4250	3600
07	138		LA		4.110		OLD RIDGE ROUTE ROAD	550	4250	3600	520	3950	3400
07	138		LA		14.534		245TH ST WEST	450	3800	3250	420	3550	3050
07	138		LA		28.054		110TH STREET WEST	700	3550	3150	620	3100	2750
07	138		LA		36.874		JCT. RTE. 14 NORTH	860	4300	3800	860	4300	3800
07	138		LA		43.418		JCT. RTE. 14 SOUTH	860	4300	3800	3000	36000	35000
07	138		LA		44.424		PALMDALE, SIERRA HIGHWAY	2000	24800	23700	2050	24600	23500
07	138		LA		44.692		PALMDALE, 10TH STREET EAST	2000	24100	23000	1900	22700	21700
07	138		LA		45.710		PALMDALE, 20TH STREET EAST	1900	22700	21700	1800	22200	21100
07	138		LA		46.730		PALMDALE, 30TH STREET EAST	1800	22200	21100	1700	20700	19600
07	138		LA		47.251		PALMDALE, 35TH STREET EAST	1700	20700	19600	1600	19500	18500
07	138		LA	R	48.520		50TH ST/PALMDALE BLVD	1650	20200	19000	930	11800	10700
07	138		LA		51.410		PALMDALE, PEARLBLOSSOM HIGHWAY/AVENUE T	1250	15900	14500	1650	23700	18100
07	138		LA		53.551		LITTLE ROCK CREEK	1600	22600	17200	1600	22600	17200
07	138		LA		56.170		96TH STREET EAST	1350	19500	14900	1400	19700	15000
07	138		LA		60.170		LONGVIEW ROAD	1300	18500	14100	1200	16900	12800
07	138		LA		63.680		165TH STREET EAST	1200	17000	12900	1200	17300	13100
07	138		LA		69.300		JCT. RTE. 18	1300	18500	14000	930	9300	9200
07	138		LA		74.973		LOS ANGELES/SAN BERNARDINO COUNTY LINE	770	9600	9500			
08	138		SBD		0		LOS ANGELES/SAN BERNARDINO COUNTY LINE				1050	12400	12000
08	138		SBD		2.906		PHELAN RD LT GREEN RD RT	1050	12400	12000	1700	19700	19000
08	138		SBD		5.764		SHEEP CREEK ROAD	1700	19700	19000	1950	22800	22000
08	138		SBD		6.662		JCT. RTE. 2 WEST	1950	22800	22000	2450	25500	22000
08	138		SBD	R	15.203		JCT. RTE. 15	2450	25500	22000	660	6900	6000
08	138		SBD	R	23.959		JCT. RTE. 173 EAST	630	6500	5700	160	1650	1550
08	138		SBD	R	26.478		CLEGHORN CANYON ROAD	160	1650	1550	160	1650	1550
08	138		SBD		33.660		OLD MILL ROAD	160	1650	1550	180	1850	1750
08	138		SBD		35.740		WATERS DRIVE	180	1850	1750	580	6000	5650
08	138		SBD		36.270		CRESTLINE, KNAPPS CUTOFF	580	6000	5650	280	2850	2700
08	138		SBD		36.710		CRESTLINE, CREST FOREST DRIVE	350	3600	3400	700	7200	6800
08	138		SBD	R	37.848		JCT. RTE. 18	770	7800	7400			

2018 Daily Truck Traffic

RTE	DIST	CNTY	POST MILE	LEG	DESCRIPTION	VEHICLE AADT TOTAL	TRUCK AADT TOTAL	TRUCK % TOT VEH	TRUCK AADT By Axle 2	TRUCK AADT By Axle 3	TRUCK AADT By Axle 4	TRUCK AADT By Axle 5+	% TOTAL TRUCK AADT By Axle 2.00	% TOTAL TRUCK AADT By Axle 3.00	% TOTAL TRUCK AADT By Axle 4.00	% TOTAL TRUCK AADT By Axle 5+	EAL 2-WAY (1000)	YEAR VER/ EST
138	08	SBD	0	O	LOS ANGELES/SAN BERNARDINO COUNTY LINE	12000	1142	9.52	415	153	98	477	36.30	13.36	8.56	41.78	164	02E
138	08	SBD	R15.203	A	JCT. RTE. 15	6000	774	12.90	682	77	15	0	88.10	9.90	2.00	0.00	25	88E
138	08	SBD	R15.203	B	JCT. RTE. 15	22000	2332	10.60	1,348	89	47	849	57.80	3.80	2.00	36.40	299	92V
138	08	SBD	R23.959	A	JCT. RTE. 173 EAST	1550	197	12.70	165	20	8	4	83.70	10.20	4.10	2.00	10	88E
138	08	SBD	R37.848	B	JCT. RTE. 18	7400	407	5.50	385	8	8	6	94.60	2.00	1.90	1.50	16	88E
138	08	SBD	6.662	B	JCT. RTE. 2 WEST	22000	3036	13.80	1,390	100	61	1,485	45.80	3.30	2.00	48.90	508	93E
138	07	LA	0R	A	JCT. RTE. 5, GOLDEN STATE FWY INTERCHANGE	2225	458	20.57	31	25	11	391	6.78	5.42	2.35	85.45	140	03E
138	07	LA	36.874	B	JCT. RTE. 14 NORTH, ANTELOPE VALLEY FWY	3800	536	14.10	37	33	13	454	6.84	6.15	2.39	84.62	163	02V
138	07	LA	43.418	A	JCT. RTE. 14 SOUTH	35000	1887	5.39	1,018	361	121	388	53.96	19.11	6.39	20.54	220	03V
138	07	LA	51.41	B	PALMDALE, PEARLBLOSSOM HWY/AVE	14500	1030	7.10	206	166	80	578	20.01	16.15	7.74	56.10	234	03V
138	07	LA	51.41	A	PALMDALE, PEARLBLOSSOM HWY/AVE	18100	1691	9.34	785	414	165	326	46.45	24.50	9.76	19.29	202	02V
138	07	LA	69.3	B	JCT. RTE. 18, PALMDALE RD	14000	1343	9.59	478	179	129	557	35.61	13.31	9.57	41.51	244	02E
138	07	LA	69.3	A	JCT. RTE. 18, PALMDALE RD	9200	876	9.52	318	117	75	366	36.30	13.36	8.56	41.78	159	02V
138	07	LA	74.973	O	LOS ANGELES/SAN BERNARDINO COUNTY LINE	12000	1142	9.52	415	153	98	477	36.30	13.36	8.56	41.78	164	02E

APPENDIX C
LEVEL OF SERVICE WORKSHEETS
(HCM / ICU)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	158	259	3	268	105	284	255	4	59	188	46
Future Volume (veh/h)	12	158	259	3	268	105	284	255	4	59	188	46
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	178	291	3	301	118	319	287	0	66	211	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	510	432	304	510	432	386	896		240	605	
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.22	0.25	0.00	0.13	0.17	0.00
Sat Flow, veh/h	968	1870	1585	924	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	13	178	291	3	301	118	319	287	0	66	211	0
Grp Sat Flow(s),veh/h/ln	968	1870	1585	924	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.7	4.5	9.6	0.2	8.2	3.4	10.0	3.9	0.0	2.0	3.1	0.0
Cycle Q Clear(g_c), s	8.9	4.5	9.6	4.6	8.2	3.4	10.0	3.9	0.0	2.0	3.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	251	510	432	304	510	432	386	896		240	605	
V/C Ratio(X)	0.05	0.35	0.67	0.01	0.59	0.27	0.83	0.32		0.28	0.35	
Avail Cap(c_a), veh/h	548	1083	918	587	1083	918	710	2275		710	2275	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.4	17.2	19.0	19.0	18.5	16.8	22.0	17.9	0.0	22.8	21.5	0.0
Incr Delay (d2), s/veh	0.2	0.9	3.9	0.0	2.3	0.7	4.6	0.4	0.0	0.2	0.7	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(50%),veh/ln	0.2	1.9	3.7	0.0	3.6	1.2	4.3	1.5	0.0	0.8	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	18.0	22.9	19.1	20.8	17.5	26.5	18.3	0.0	23.1	22.2	0.0
LnGrp LOS	C	B	C	B	C	B	C	B		C	C	
Approach Vol, veh/h		482			422			606	A		277	A
Approach Delay, s/veh		21.1			19.9			22.6			22.4	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	17.3	17.5		23.9	12.5	22.3		23.9				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0				
Max Q Clear Time (g_c+I1), s	12.0	5.1		10.2	4.0	5.9		11.6				
Green Ext Time (p_c), s	0.8	2.6		4.4	0.1	3.7		4.4				
Intersection Summary												
HCM 6th Ctrl Delay			21.5									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	384	555	9	162	121	337	323	10	172	353	39
Future Volume (veh/h)	67	384	555	9	162	121	337	323	10	172	353	39
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	417	603	10	176	132	366	351	0	187	384	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	414	704	597	189	704	597	404	960		235	623	
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.23	0.27	0.00	0.13	0.18	0.00
Sat Flow, veh/h	1071	1870	1585	553	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	73	417	603	10	176	132	366	351	0	187	384	0
Grp Sat Flow(s),veh/h/ln	1071	1870	1585	553	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	4.5	16.1	34.0	1.3	5.8	5.1	18.1	7.2	0.0	9.2	9.0	0.0
Cycle Q Clear(g_c), s	10.4	16.1	34.0	17.5	5.8	5.1	18.1	7.2	0.0	9.2	9.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	414	704	597	189	704	597	404	960		235	623	
V/C Ratio(X)	0.18	0.59	1.01	0.05	0.25	0.22	0.91	0.37		0.80	0.62	
Avail Cap(c_a), veh/h	414	704	597	189	704	597	462	1480		462	1480	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.9	22.6	28.1	29.6	19.4	19.1	34.0	26.7	0.0	38.0	34.4	0.0
Incr Delay (d2), s/veh	0.4	2.1	39.4	0.2	0.4	0.4	19.9	0.5	0.0	2.4	2.1	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(50%),veh/ln	1.2	7.2	18.7	0.2	2.6	1.9	9.8	3.1	0.0	4.1	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	24.6	67.5	29.8	19.8	19.5	53.8	27.2	0.0	40.4	36.6	0.0
LnGrp LOS	C	C	F	C	B	B	D	C		D	D	
Approach Vol, veh/h		1093			318			717	A		571	A
Approach Delay, s/veh		48.2			20.0			40.8			37.8	
Approach LOS		D			B			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	25.1	23.3		41.9	16.5	31.9		41.9				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0				
Max Q Clear Time (g_c+I1), s	20.1	11.0		19.5	11.2	9.2		36.0				
Green Ext Time (p_c), s	0.4	4.8		2.4	0.2	4.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			40.7									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	164	269	3	278	109	295	265	4	61	195	48
Future Volume (veh/h)	12	164	269	3	278	109	295	265	4	61	195	48
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	184	302	3	312	122	331	298	0	69	219	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	521	441	302	521	441	396	897		243	591	
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.22	0.25	0.00	0.14	0.17	0.00
Sat Flow, veh/h	954	1870	1585	910	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	13	184	302	3	312	122	331	298	0	69	219	0
Grp Sat Flow(s),veh/h/ln	954	1870	1585	910	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.7	4.7	10.2	0.2	8.7	3.6	10.7	4.1	0.0	2.1	3.3	0.0
Cycle Q Clear(g_c), s	9.4	4.7	10.2	4.9	8.7	3.6	10.7	4.1	0.0	2.1	3.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	521	441	302	521	441	396	897		243	591	
V/C Ratio(X)	0.05	0.35	0.68	0.01	0.60	0.28	0.83	0.33		0.28	0.37	
Avail Cap(c_a), veh/h	522	1058	896	563	1058	896	693	2222		693	2222	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.9	17.4	19.3	19.3	18.8	17.0	22.3	18.3	0.0	23.3	22.3	0.0
Incr Delay (d2), s/veh	0.2	0.9	4.0	0.0	2.4	0.7	4.7	0.5	0.0	0.2	0.8	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(50%),veh/ln	0.2	2.0	3.9	0.0	3.8	1.3	4.6	1.6	0.0	0.8	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	18.2	23.3	19.3	21.1	17.7	27.0	18.8	0.0	23.6	23.1	0.0
LnGrp LOS	C	B	C	B	C	B	C	B		C	C	
Approach Vol, veh/h		499			437			629	A		288	A
Approach Delay, s/veh		21.4			20.2			23.1			23.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.0	17.5		24.6	12.8	22.7		24.6				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0				
Max Q Clear Time (g_c+I1), s	12.7	5.3		10.7	4.1	6.1		12.2				
Green Ext Time (p_c), s	0.8	2.7		4.5	0.1	3.8		4.5				
Intersection Summary												
HCM 6th Ctrl Delay			22.0									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	398	576	9	168	126	350	335	10	178	366	40
Future Volume (veh/h)	70	398	576	9	168	126	350	335	10	178	366	40
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	433	626	10	183	137	380	364	0	193	398	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	398	692	586	174	692	586	415	1005		231	637	
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.23	0.28	0.00	0.13	0.18	0.00
Sat Flow, veh/h	1060	1870	1585	533	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	433	626	10	183	137	380	364	0	193	398	0
Grp Sat Flow(s),veh/h/ln	1060	1870	1585	533	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.0	17.4	34.0	1.4	6.3	5.5	19.1	7.5	0.0	9.7	9.5	0.0
Cycle Q Clear(g_c), s	11.2	17.4	34.0	18.9	6.3	5.5	19.1	7.5	0.0	9.7	9.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	398	692	586	174	692	586	415	1005		231	637	
V/C Ratio(X)	0.19	0.63	1.07	0.06	0.26	0.23	0.92	0.36		0.84	0.62	
Avail Cap(c_a), veh/h	398	692	586	174	692	586	454	1454		454	1454	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.1	23.7	28.9	31.5	20.2	20.0	34.3	26.3	0.0	39.0	34.9	0.0
Incr Delay (d2), s/veh	0.5	2.6	56.4	0.3	0.4	0.4	22.1	0.5	0.0	3.1	2.1	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(50%),veh/ln	1.3	7.9	21.5	0.2	2.8	2.0	10.6	3.2	0.0	4.4	4.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	26.3	85.4	31.8	20.6	20.4	56.4	26.8	0.0	42.1	37.0	0.0
LnGrp LOS	C	C	F	C	C	C	E	C		D	D	
Approach Vol, veh/h		1135			330			744	A		591	A
Approach Delay, s/veh		58.8			20.9			41.9			38.7	
Approach LOS		E			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	26.0	24.0		41.9	16.5	33.5		41.9
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0
Max Q Clear Time (g_c+I1), s	21.1	11.5		20.9	11.7	9.5		36.0
Green Ext Time (p_c), s	0.3	5.0		2.4	0.2	4.6		0.0

Intersection Summary			
HCM 6th Ctrl Delay			45.6
HCM 6th LOS			D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	164	334	3	278	109	360	226	4	61	161	48
Future Volume (veh/h)	68	164	334	3	278	109	360	226	4	61	161	48
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	184	375	3	312	122	404	254	0	69	181	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	273	591	501	308	591	501	457	969		225	506	
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.26	0.27	0.00	0.13	0.14	0.00
Sat Flow, veh/h	954	1870	1585	850	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	184	375	3	312	122	404	254	0	69	181	0
Grp Sat Flow(s),veh/h/ln	954	1870	1585	850	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.0	5.2	14.9	0.2	9.6	4.0	15.3	3.9	0.0	2.5	3.2	0.0
Cycle Q Clear(g_c), s	14.6	5.2	14.9	5.4	9.6	4.0	15.3	3.9	0.0	2.5	3.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	273	591	501	308	591	501	457	969		225	506	
V/C Ratio(X)	0.28	0.31	0.75	0.01	0.53	0.24	0.88	0.26		0.31	0.36	
Avail Cap(c_a), veh/h	434	906	768	451	906	768	594	1904		594	1904	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.7	18.2	21.5	20.3	19.7	17.8	25.1	20.0	0.0	27.9	27.2	0.0
Incr Delay (d2), s/veh	1.2	0.6	4.8	0.0	1.6	0.5	12.1	0.3	0.0	0.3	0.9	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(50%),veh/ln	1.2	2.2	5.8	0.0	4.2	1.5	7.6	1.6	0.0	1.0	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	18.9	26.3	20.3	21.3	18.3	37.2	20.3	0.0	28.1	28.1	0.0
LnGrp LOS	C	B	C	C	C	B	D	C		C	C	
Approach Vol, veh/h		635			437			658	A		250	A
Approach Delay, s/veh		24.2			20.4			30.7			28.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.6	17.5		30.1	13.5	26.6		30.1				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0				
Max Q Clear Time (g_c+I1), s	17.3	5.2		11.6	4.5	5.9		16.9				
Green Ext Time (p_c), s	0.7	2.2		4.5	0.1	3.2		5.3				

Intersection Summary			
HCM 6th Ctrl Delay			26.0
HCM 6th LOS			C

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	483	568	56	0	117
Future Vol, veh/h	0	483	568	56	0	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	525	617	61	0	127

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	309
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	687
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	687
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	687
HCM Lane V/C Ratio	-	-	-	0.185
HCM Control Delay (s)	-	-	-	11.4
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	398	645	9	168	126	417	292	10	178	329	40
Future Volume (veh/h)	130	398	645	9	168	126	417	292	10	178	329	40
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	433	701	10	183	137	453	317	0	193	358	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	395	687	582	166	687	582	451	1022		229	581	
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.25	0.29	0.00	0.13	0.16	0.00
Sat Flow, veh/h	1060	1870	1585	496	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	141	433	701	10	183	137	453	317	0	193	358	0
Grp Sat Flow(s),veh/h/ln	1060	1870	1585	496	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.0	17.6	34.0	1.6	6.3	5.5	23.4	6.5	0.0	9.8	8.7	0.0
Cycle Q Clear(g_c), s	16.3	17.6	34.0	19.2	6.3	5.5	23.4	6.5	0.0	9.8	8.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	395	687	582	166	687	582	451	1022		229	581	
V/C Ratio(X)	0.36	0.63	1.20	0.06	0.27	0.24	1.01	0.31		0.84	0.62	
Avail Cap(c_a), veh/h	395	687	582	166	687	582	451	1444		451	1444	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.2	24.1	29.3	32.0	20.5	20.3	34.6	25.8	0.0	39.4	36.0	0.0
Incr Delay (d2), s/veh	1.2	2.6	107.2	0.3	0.4	0.4	43.8	0.4	0.0	3.2	2.3	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(50%),veh/ln	2.6	8.0	29.6	0.2	2.8	2.1	15.3	2.7	0.0	4.4	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	26.7	136.5	32.3	21.0	20.7	78.3	26.1	0.0	42.6	38.3	0.0
LnGrp LOS	C	C	F	C	C	C	F	C		D	D	
Approach Vol, veh/h		1275			330			770	A		551	A
Approach Delay, s/veh		87.1			21.2			56.9			39.8	
Approach LOS		F			C			E			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.0	22.6		41.9	16.5	34.1		41.9				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0				
Max Q Clear Time (g_c+I1), s	25.4	10.7		21.2	11.8	8.5		36.0				
Green Ext Time (p_c), s	0.0	4.5		2.4	0.2	4.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			62.8									
HCM 6th LOS			E									

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1061	515	45	0	105
Future Vol, veh/h	0	1061	515	45	0	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1153	560	49	0	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	280
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	717
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	717
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	717
HCM Lane V/C Ratio	-	-	-	0.159
HCM Control Delay (s)	-	-	-	11
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	167	274	3	283	111	300	270	4	62	199	49
Future Volume (veh/h)	13	167	274	3	283	111	300	270	4	62	199	49
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	188	308	3	318	125	337	303	0	70	224	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	246	528	447	300	528	447	402	899		244	583	
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.23	0.25	0.00	0.14	0.16	0.00
Sat Flow, veh/h	947	1870	1585	901	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	15	188	308	3	318	125	337	303	0	70	224	0
Grp Sat Flow(s),veh/h/ln	947	1870	1585	901	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	4.9	10.5	0.2	9.0	3.7	11.0	4.2	0.0	2.2	3.4	0.0
Cycle Q Clear(g_c), s	9.8	4.9	10.5	5.0	9.0	3.7	11.0	4.2	0.0	2.2	3.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	528	447	300	528	447	402	899		244	583	
V/C Ratio(X)	0.06	0.36	0.69	0.01	0.60	0.28	0.84	0.34		0.29	0.38	
Avail Cap(c_a), veh/h	507	1044	885	549	1044	885	684	2193		684	2193	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.2	17.5	19.5	19.5	18.9	17.0	22.5	18.6	0.0	23.6	22.7	0.0
Incr Delay (d2), s/veh	0.2	0.9	4.0	0.0	2.4	0.7	4.7	0.5	0.0	0.2	0.9	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(50%),veh/ln	0.2	2.1	4.0	0.0	3.9	1.3	4.8	1.7	0.0	0.9	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	18.3	23.5	19.5	21.3	17.8	27.3	19.1	0.0	23.9	23.6	0.0
LnGrp LOS	C	B	C	B	C	B	C	B		C	C	
Approach Vol, veh/h		511			446			640	A		294	A
Approach Delay, s/veh		21.6			20.3			23.4			23.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.3	17.5		25.1	12.9	22.9		25.1				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0				
Max Q Clear Time (g_c+I1), s	13.0	5.4		11.0	4.2	6.2		12.5				
Green Ext Time (p_c), s	0.8	2.8		4.6	0.1	3.9		4.6				
Intersection Summary												
HCM 6th Ctrl Delay			22.2									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	406	587	10	171	128	356	342	11	182	373	41
Future Volume (veh/h)	71	406	587	10	171	128	356	342	11	182	373	41
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	77	441	638	11	186	139	387	372	0	198	405	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	391	686	581	167	686	581	421	1016		234	644	
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.24	0.29	0.00	0.13	0.18	0.00
Sat Flow, veh/h	1055	1870	1585	523	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	77	441	638	11	186	139	387	372	0	198	405	0
Grp Sat Flow(s),veh/h/ln	1055	1870	1585	523	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.1	18.1	34.0	1.7	6.5	5.6	19.7	7.7	0.0	10.1	9.8	0.0
Cycle Q Clear(g_c), s	11.6	18.1	34.0	19.8	6.5	5.6	19.7	7.7	0.0	10.1	9.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	391	686	581	167	686	581	421	1016		234	644	
V/C Ratio(X)	0.20	0.64	1.10	0.07	0.27	0.24	0.92	0.37		0.84	0.63	
Avail Cap(c_a), veh/h	391	686	581	167	686	581	450	1441		450	1441	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	24.7	24.3	29.4	32.5	20.6	20.4	34.5	26.4	0.0	39.3	35.1	0.0
Incr Delay (d2), s/veh	0.5	2.9	66.8	0.3	0.5	0.4	23.3	0.5	0.0	3.2	2.2	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(50%),veh/ln	1.3	8.3	23.1	0.2	2.9	2.1	11.0	3.3	0.0	4.5	4.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	27.2	96.1	32.9	21.1	20.8	57.8	26.9	0.0	42.5	37.2	0.0
LnGrp LOS	C	C	F	C	C	C	E	C		D	D	
Approach Vol, veh/h		1156			336			759	A		603	A
Approach Delay, s/veh		65.1			21.4			42.6			39.0	
Approach LOS		E			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	26.5	24.3		41.9	16.8	34.0		41.9				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0				
Max Q Clear Time (g_c+I1), s	21.7	11.8		21.8	12.1	9.7		36.0				
Green Ext Time (p_c), s	0.3	5.0		2.4	0.2	4.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			48.5
HCM 6th LOS			D

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	167	339	3	283	111	365	231	4	62	165	49
Future Volume (veh/h)	69	167	339	3	283	111	365	231	4	62	165	49
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	188	381	3	318	125	410	260	0	70	185	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	596	505	306	596	505	462	972		225	500	
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.26	0.27	0.00	0.13	0.14	0.00
Sat Flow, veh/h	947	1870	1585	843	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	78	188	381	3	318	125	410	260	0	70	185	0
Grp Sat Flow(s),veh/h/ln	947	1870	1585	843	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.2	5.4	15.3	0.2	9.9	4.1	15.7	4.1	0.0	2.5	3.4	0.0
Cycle Q Clear(g_c), s	15.2	5.4	15.3	5.6	9.9	4.1	15.7	4.1	0.0	2.5	3.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	271	596	505	306	596	505	462	972		225	500	
V/C Ratio(X)	0.29	0.32	0.75	0.01	0.53	0.25	0.89	0.27		0.31	0.37	
Avail Cap(c_a), veh/h	422	895	758	440	895	758	586	1880		586	1880	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.1	18.3	21.7	20.5	19.9	17.9	25.3	20.2	0.0	28.2	27.7	0.0
Incr Delay (d2), s/veh	1.2	0.6	4.9	0.0	1.6	0.5	13.0	0.3	0.0	0.3	1.0	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(50%),veh/ln	1.2	2.3	6.0	0.0	4.3	1.5	7.9	1.6	0.0	1.1	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	19.0	26.6	20.5	21.5	18.5	38.3	20.6	0.0	28.5	28.7	0.0
LnGrp LOS	C	B	C	C	C	B	D	C		C	C	
Approach Vol, veh/h		647			446			670	A		255	A
Approach Delay, s/veh		24.5			20.6			31.4			28.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	17.5		30.6	13.6	26.9		30.6				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	23.4	37.6		34.0				
Max Q Clear Time (g_c+I1), s	17.7	5.4		11.9	4.5	6.1		17.3				
Green Ext Time (p_c), s	0.7	2.2		4.5	0.1	3.3		5.3				

Intersection Summary			
HCM 6th Ctrl Delay			26.4
HCM 6th LOS			C

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	492	579	56	0	117
Future Vol, veh/h	0	492	579	56	0	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	535	629	61	0	127

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	315
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	681
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	681
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	681
HCM Lane V/C Ratio	-	-	-	0.187
HCM Control Delay (s)	-	-	-	11.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	406	656	10	171	128	423	299	11	182	336	41
Future Volume (veh/h)	131	406	656	10	171	128	423	299	11	182	336	41
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	142	441	713	11	186	139	460	325	0	198	365	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	390	685	581	161	685	581	449	1019		234	590	
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.25	0.29	0.00	0.13	0.17	0.00
Sat Flow, veh/h	1055	1870	1585	487	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	142	441	713	11	186	139	460	325	0	198	365	0
Grp Sat Flow(s),veh/h/ln	1055	1870	1585	487	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.2	18.1	34.0	1.8	6.5	5.7	23.4	6.7	0.0	10.1	8.9	0.0
Cycle Q Clear(g_c), s	16.6	18.1	34.0	19.9	6.5	5.7	23.4	6.7	0.0	10.1	8.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	390	685	581	161	685	581	449	1019		234	590	
V/C Ratio(X)	0.36	0.64	1.23	0.07	0.27	0.24	1.02	0.32		0.85	0.62	
Avail Cap(c_a), veh/h	390	685	581	161	685	581	449	1505		417	1440	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.5	24.4	29.4	32.6	20.7	20.4	34.7	26.0	0.0	39.4	36.0	0.0
Incr Delay (d2), s/veh	1.2	2.9	117.1	0.4	0.5	0.5	48.7	0.4	0.0	3.2	2.3	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(50%),veh/ln	2.6	8.3	31.2	0.2	2.9	2.1	15.9	2.8	0.0	4.6	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	27.2	146.5	33.0	21.1	20.9	83.4	26.4	0.0	42.6	38.2	0.0
LnGrp LOS	C	C	F	C	C	C	F	C		D	D	
Approach Vol, veh/h		1296			336			785	A		563	A
Approach Delay, s/veh		92.9			21.4			59.8			39.8	
Approach LOS		F			C			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.0	22.9		41.9	16.8	34.1		41.9				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	21.7	39.3		34.0				
Max Q Clear Time (g_c+I1), s	25.4	10.9		21.9	12.1	8.7		36.0				
Green Ext Time (p_c), s	0.0	4.5		2.3	0.2	4.2		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		66.1
HCM 6th LOS		E

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1081	526	45	0	105
Future Vol, veh/h	0	1081	526	45	0	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	150	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1175	572	49	0	114

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	286
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	-	0	711
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	711
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	711
HCM Lane V/C Ratio	-	-	-	0.161
HCM Control Delay (s)	-	-	-	11
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	164	334	3	278	109	360	226	4	61	161	48
Future Volume (veh/h)	68	164	334	3	278	109	360	226	4	61	161	48
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	184	375	3	312	122	404	254	0	69	181	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	587	904	306	587	497	458	971		226	509	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.26	0.27	0.00	0.13	0.14	0.00
Sat Flow, veh/h	954	1870	1585	850	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	76	184	375	3	312	122	404	254	0	69	181	0
Grp Sat Flow(s),veh/h/ln	954	1870	1585	850	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.0	5.2	9.3	0.2	9.6	4.0	15.2	3.9	0.0	2.5	3.2	0.0
Cycle Q Clear(g_c), s	14.6	5.2	9.3	5.4	9.6	4.0	15.2	3.9	0.0	2.5	3.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	271	587	904	306	587	497	458	971		226	509	
V/C Ratio(X)	0.28	0.31	0.41	0.01	0.53	0.25	0.88	0.26		0.31	0.36	
Avail Cap(c_a), veh/h	436	910	1179	453	910	772	597	2376		365	1913	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.8	18.2	8.4	20.3	19.7	17.8	24.9	19.9	0.0	27.7	27.0	0.0
Incr Delay (d2), s/veh	1.2	0.6	0.7	0.0	1.6	0.5	11.9	0.3	0.0	0.3	0.9	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(50%),veh/ln	1.2	2.2	2.8	0.0	4.2	1.5	7.6	1.6	0.0	1.0	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	18.9	9.1	20.3	21.3	18.4	36.9	20.2	0.0	28.0	27.9	0.0
LnGrp LOS	C	B	A	C	C	B	D	C		C	C	
Approach Vol, veh/h		635			437			658	A		250	A
Approach Delay, s/veh		14.1			20.5			30.4			27.9	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.5	17.5		29.8	13.5	26.6		29.8				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	14.3	46.7		34.0				
Max Q Clear Time (g_c+I1), s	17.2	5.2		11.6	4.5	5.9		16.6				
Green Ext Time (p_c), s	0.7	2.2		4.5	0.0	3.4		5.3				

Intersection Summary	
HCM 6th Ctrl Delay	22.7
HCM 6th LOS	C

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	398	645	9	168	126	417	292	10	178	329	40
Future Volume (veh/h)	130	398	645	9	168	126	417	292	10	178	329	40
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	433	701	10	183	137	453	317	0	193	358	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	677	979	163	677	574	455	1029		232	583	
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.26	0.29	0.00	0.13	0.16	0.00
Sat Flow, veh/h	1060	1870	1585	496	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	141	433	701	10	183	137	453	317	0	193	358	0
Grp Sat Flow(s),veh/h/ln	1060	1870	1585	496	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	9.9	17.6	27.8	1.6	6.3	5.5	23.2	6.4	0.0	9.7	8.6	0.0
Cycle Q Clear(g_c), s	16.3	17.6	27.8	19.2	6.3	5.5	23.2	6.4	0.0	9.7	8.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	389	677	979	163	677	574	455	1029		232	583	
V/C Ratio(X)	0.36	0.64	0.72	0.06	0.27	0.24	1.00	0.31		0.83	0.61	
Avail Cap(c_a), veh/h	399	694	994	168	694	589	455	1541		414	1459	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.4	24.3	12.0	32.2	20.7	20.4	34.0	25.4	0.0	38.9	35.6	0.0
Incr Delay (d2), s/veh	1.2	2.8	3.1	0.3	0.5	0.5	40.8	0.4	0.0	3.0	2.2	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(50%),veh/ln	2.6	8.0	9.4	0.2	2.8	2.1	14.9	2.7	0.0	4.4	3.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	27.0	15.1	32.6	21.1	20.9	74.9	25.7	0.0	41.8	37.8	0.0
LnGrp LOS	C	C	B	C	C	C	E	C		D	D	
Approach Vol, veh/h		1275			330			770	A		551	A
Approach Delay, s/veh		20.5			21.4			54.6			39.2	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.0	22.5		41.0	16.5	34.0		41.0				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	21.3	39.7		34.0				
Max Q Clear Time (g_c+I1), s	25.2	10.6		21.2	11.7	8.4		29.8				
Green Ext Time (p_c), s	0.0	4.5		2.4	0.2	4.1		3.4				

Intersection Summary			
HCM 6th Ctrl Delay			33.1
HCM 6th LOS			C

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	167	339	3	283	111	365	231	4	62	165	49
Future Volume (veh/h)	69	167	339	3	283	111	365	231	4	62	165	49
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	188	381	3	318	125	410	260	0	70	185	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	594	914	305	594	503	462	973		226	501	
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.26	0.27	0.00	0.13	0.14	0.00
Sat Flow, veh/h	947	1870	1585	843	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	78	188	381	3	318	125	410	260	0	70	185	0
Grp Sat Flow(s),veh/h/ln	947	1870	1585	843	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	5.2	5.4	9.5	0.2	9.9	4.1	15.7	4.1	0.0	2.5	3.3	0.0
Cycle Q Clear(g_c), s	15.2	5.4	9.5	5.6	9.9	4.1	15.7	4.1	0.0	2.5	3.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	270	594	914	305	594	503	462	973		226	501	
V/C Ratio(X)	0.29	0.32	0.42	0.01	0.54	0.25	0.89	0.27		0.31	0.37	
Avail Cap(c_a), veh/h	423	897	1171	441	897	760	590	2340		359	1879	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.1	18.4	8.4	20.5	19.9	17.9	25.3	20.2	0.0	28.2	27.6	0.0
Incr Delay (d2), s/veh	1.3	0.6	0.6	0.0	1.6	0.5	12.7	0.3	0.0	0.3	1.0	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(50%),veh/ln	1.2	2.3	2.9	0.0	4.3	1.5	7.9	1.6	0.0	1.1	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	19.0	9.0	20.5	21.5	18.5	38.0	20.5	0.0	28.4	28.6	0.0
LnGrp LOS	C	B	A	C	C	B	D	C		C	C	
Approach Vol, veh/h		647			446			670	A		255	A
Approach Delay, s/veh		14.1			20.7			31.2			28.5	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.0	17.5		30.4	13.6	26.9		30.4				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.5	37.5		34.0	14.3	46.7		34.0				
Max Q Clear Time (g_c+I1), s	17.7	5.3		11.9	4.5	6.1		17.2				
Green Ext Time (p_c), s	0.7	2.2		4.5	0.0	3.5		5.4				

Intersection Summary			
HCM 6th Ctrl Delay			23.1
HCM 6th LOS			C

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	406	656	10	171	128	423	299	11	182	336	41
Future Volume (veh/h)	131	406	656	10	171	128	423	299	11	182	336	41
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	142	441	713	11	186	139	460	325	0	198	365	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	387	678	977	159	678	575	452	1026		234	591	
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.25	0.29	0.00	0.13	0.17	0.00
Sat Flow, veh/h	1055	1870	1585	487	1870	1585	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	142	441	713	11	186	139	460	325	0	198	365	0
Grp Sat Flow(s),veh/h/ln	1055	1870	1585	487	1870	1585	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	10.1	18.1	28.9	1.8	6.5	5.6	23.4	6.6	0.0	10.0	8.8	0.0
Cycle Q Clear(g_c), s	16.6	18.1	28.9	19.9	6.5	5.6	23.4	6.6	0.0	10.0	8.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	387	678	977	159	678	575	452	1026		234	591	
V/C Ratio(X)	0.37	0.65	0.73	0.07	0.27	0.24	1.02	0.32		0.84	0.62	
Avail Cap(c_a), veh/h	393	690	987	162	690	585	452	1515		419	1450	
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	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.7	24.5	12.3	32.8	20.8	20.5	34.4	25.7	0.0	39.1	35.7	0.0
Incr Delay (d2), s/veh	1.2	3.0	3.4	0.4	0.5	0.5	46.7	0.4	0.0	3.2	2.2	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(50%),veh/ln	2.6	8.3	9.9	0.2	2.9	2.1	15.7	2.8	0.0	4.5	3.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.9	27.5	15.7	33.2	21.2	21.0	81.1	26.0	0.0	42.3	37.9	0.0
LnGrp LOS	C	C	B	C	C	C	F	C		D	D	
Approach Vol, veh/h		1296			336			785	A		563	A
Approach Delay, s/veh		21.0			21.5			58.3			39.5	
Approach LOS		C			C			E			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.0	22.8		41.3	16.7	34.1		41.3				
Change Period (Y+Rc), s	4.6	7.5		7.9	4.6	7.5		7.9				
Max Green Setting (Gmax), s	23.4	37.6		34.0	21.7	39.3		34.0				
Max Q Clear Time (g_c+I1), s	25.4	10.8		21.9	12.0	8.6		30.9				
Green Ext Time (p_c), s	0.0	4.5		2.4	0.2	4.2		2.5				

Intersection Summary		
HCM 6th Ctrl Delay		34.4
HCM 6th LOS		C

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	137	362	641	91	205	5
v/c Ratio	0.61	0.30	0.54	0.15	0.26	0.01
Control Delay	24.3	10.4	12.6	3.4	9.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	10.4	12.6	3.4	9.5	5.8
Queue Length 50th (ft)	25	31	60	0	27	0
Queue Length 95th (ft)	#75	53	94	18	69	4
Internal Link Dist (ft)		350	1273		225	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	294	1563	1563	750	782	702
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.23	0.41	0.12	0.26	0.01

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	116	1020	585	86	200	4
v/c Ratio	0.40	0.74	0.43	0.13	0.28	0.01
Control Delay	14.6	15.5	11.0	3.3	10.4	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	15.5	11.0	3.3	10.4	6.0
Queue Length 50th (ft)	20	110	53	0	33	0
Queue Length 95th (ft)	54	165	85	18	68	4
Internal Link Dist (ft)		350	1273		331	
Turn Bay Length (ft)	250			250		
Base Capacity (vph)	307	1442	1442	695	721	647
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.71	0.41	0.12	0.28	0.01

Intersection Summary

1 Project Driveway 2 at Pearblossom Highway

Opening Year + Project

	LANES	CAPACITY	AM PEAK HOUR VOL	AM PEAK HOUR V/C	PM PEAK HOUR VOL	PM PEAK HOUR V/C
NBL	0	0	0	0.00	0	0.00
NBT	0	0	0	0.00 *	0	0.00 *
NBR	0	0	0	0.00	0	0.00
SBL	1	1600	189	0.12 *	184	0.12 *
SBT	0	0	0	0.00	0	0.00
SBR	1	1600	5	0.00	4	0.00
EBL	1	1600	126	0.08 *	107	0.07
EBT	2	3200	324	0.10	918	0.29 *
EBR	0	0	0	0.00	0	0.00
WBL	0	0	0	0.00	0	0.00 *
WBT	2	3200	579	0.18 *	527	0.16
WBR	1	1600	84	0.05	79	0.05
Right Turn Adjustment				0.00		0.00
Clearance Interval				0.05		0.05
Right Turn Overlap				0.00		0.00
TOTAL CAPACITY UTILIZATION				0.43		0.46

Opening Year + Cumulative Projects + Project

	LANES	CAPACITY	AM PEAK HOUR VOL	AM PEAK HOUR V/C	PM PEAK HOUR VOL	PM PEAK HOUR V/C
NBL	0	0	0	0.00	0	0.00
NBT	0	0	0	0.00 *	0	0.00 *
NBR	0	0	0	0.00	0	0.00
SBL	1	1600	189	0.12 *	184	0.12 *
SBT	0	0	0	0.00	0	0.00
SBR	1	1600	5	0.00	4	0.00
EBL	1	1600	126	0.08 *	107	0.07
EBT	2	3200	333	0.10	938	0.29 *
EBR	0	0	0	0.00	0	0.00
WBL	0	0	0	0.00	0	0.00 *
WBT	2	3200	590	0.18 *	538	0.17
WBR	1	1600	84	0.05	79	0.05
Right Turn Adjustment				0.00		0.00
Clearance Interval				0.05		0.05
Right Turn Overlap				0.00		0.00
TOTAL CAPACITY UTILIZATION				0.43		0.46
Project Impact				0.00		0.00

APPENDIX D
DAILY TRUCK STOP TRIP DATA

	12:00AM	01:00AM	02:00AM	03:00AM	04:00AM	05:00AM	06:00AM	07:00AM	08:00AM	09:00AM	10:00AM	11:00AM	12:00PM	01:00PM	02:00PM	03:00PM	04:00PM	05:00PM	06:00PM	07:00PM	08:00PM	09:00PM	10:00PM	11:00PM	Day Total
Thursday	701	661	711	830	1,046	1,342	1,748	1,896	2,005	2,048	2,097	2,061	2,076	2,070	2,048	2,004	1,916	1,782	1,605	1,395	1,204	1,010	890	767	35,913
Friday	686	675	699	826	1,043	1,326	1,701	1,883	1,940	1,957	2,002	1,980	1,973	1,980	1,922	1,878	1,816	1,664	1,515	1,317	1,136	943	840	737	34,440
Saturday	646	623	633	708	856	1,057	1,341	1,473	1,593	1,697	1,728	1,731	1,765	1,697	1,658	1,615	1,542	1,398	1,257	1,101	936	815	681	611	29,163
Sunday	536	518	506	545	678	811	1,036	1,186	1,364	1,485	1,610	1,627	1,640	1,600	1,578	1,555	1,487	1,353	1,212	1,050	913	782	676	590	26,337
Monday	551	538	599	714	956	1,243	1,606	1,787	1,871	1,901	1,931	1,927	1,925	1,918	1,940	1,902	1,846	1,707	1,558	1,360	1,158	965	848	738	33,491
Tuesday	670	669	700	827	1,061	1,372	1,749	1,952	2,032	2,107	2,112	2,102	2,113	2,110	2,091	2,066	1,995	1,858	1,673	1,455	1,250	1,062	905	791	36,722
Wednesday	716	702	727	850	1,039	1,362	1,755	1,940	2,038	2,087	2,098	2,113	2,123	2,092	2,092	2,065	1,985	1,794	1,661	1,429	1,203	1,024	875	782	36,554
Total for week	4,507	4,387	4,575	5,299	6,680	8,514	10,936	12,118	12,843	13,281	13,579	13,541	13,615	13,468	13,328	13,085	12,587	11,557	10,481	9,106	7,801	6,600	5,716	5,017	232,620
Hourly percentage	1.94%	1.89%	1.97%	2.28%	2.87%	3.66%	4.70%	5.21%	5.52%	5.71%	5.84%	5.82%	5.85%	5.79%	5.73%	5.62%	5.41%	4.97%	4.51%	3.91%	3.35%	2.84%	2.46%	2.16%	100.00%
Expected transactions	6	6	6	7	9	11	15	16	17	18	18	18	18	18	18	17	17	15	14	12	10	9	8	7	311

Monthly volume	700,000	gallons
Daily volume	23,333	gallons
Average fill	105	gallons
Fills/day	222	
Safety factor	1.4	(accounts for non-fueling customers)
Trucks/day	311	

Distribution numbers are based on sales data from 60 similar facilities in the region surrounding San Bernardino, CA