

# Appendix F

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Transportation Impact Study

TRAFFIC IMPACT STUDY  
**GOLETA TRAIN DEPOT**  
City of Goleta, California  
September 3, 2020

*Prepared for:*

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#### APPENDIX

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TRAFFIC IMPACT STUDY  
**GOLETA TRAIN DEPOT**  
City of Goleta, California  
September 3, 2020

## 1.0 INTRODUCTION

This traffic analysis has been conducted to identify and evaluate the potential traffic impacts of the proposed train depot project (the “Project”) located at 27 S. La Patera Lane in the City of Goleta, California (the “Project Site”). The Project proposes the development of an approximately 9,000 square foot train depot just south of the existing Goleta Amtrak train platform site at the northern terminus of La Patera Lane. The Project Site is generally bounded by La Patera Lane to the north, office buildings to the south, La Patera Lane to the east, and office buildings to the west. The Project Site location and general vicinity are shown in *Figure 1-1*.

The traffic analysis follows City of Goleta (the “City”) Resolution No. 20-44<sup>1</sup> (the “Resolution”). In compliance with the California Environmental Quality Act (CEQA), the City’s Resolution identifies vehicle miles traveled (VMT) as the primary metric for evaluating a project’s transportation impacts. In addition, the City’s Resolution requires that a Level of Service (LOS) analysis be performed at the local level, per Policy TE-4 of the City’s General Plan. This traffic analysis provides an assessment of the Project’s VMT transportation impact and evaluates potential changes to operations due to Project-related traffic at seven key intersections in the vicinity of the Project Site. The Intersection Capacity Utilization (ICU) method was used to determine Volume-to-Capacity (*v/c*) ratios and corresponding LOS at the study intersections located within the City of Goleta. Additionally, the Highway Capacity Manual method was used to determine average control delays and corresponding LOS at the study intersections located within Caltrans’ jurisdiction.

This study: (i) presents a VMT assessment, (ii) presents existing traffic volumes, (iii) includes existing traffic volumes with the forecast net new traffic volumes from the proposed Project, (iv) forecasts future cumulative baseline traffic volumes, (v) forecasts future traffic volumes with the proposed Project, and (vi) determines future operations at the study intersections with Project-related traffic.

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<sup>1</sup> *Resolution No. 20-44*, City of Goleta, July 2020.




  
**NOT TO SCALE**

MAP SOURCE: GOOGLE MAPS  
 PROJECT SITE   
 STUDY INTERSECTION 

**FIGURE 1-1**  
**VICINITY MAP**



## 1.1 Study Area

The VMT assessment criteria for this traffic analysis was determined in consultation with City of Goleta staff. In addition, seven study intersections have been identified for evaluation during the weekday morning and afternoon peak hours upon coordination with City staff. The study intersections were evaluated from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM to determine the respective peak commuter hours. The seven study intersections provide local access to the study area and define the extent of the boundaries for this traffic operations analysis. Further discussion of the existing street system and study area is provided in Section 4.0.

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

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

The locations selected for analysis were based on the above criteria, the peak-hour vehicle trip generation associated with the proposed Project, the anticipated distribution of Project vehicular trips, and existing intersection/corridor operations.

## **2.0 PROJECT DESCRIPTION**

### **2.1 Site Location**

The proposed Project Site is located at 27 S. La Patera Lane in the City of Goleta. The Project Site is bounded by La Patera Lane to the north, office buildings to the south, La Patera Lane to the east, and office buildings to the west. The Project Site location and general vicinity are shown in *Figure 1-1*.

### **2.2 Existing Project Site**

The Project Site is currently occupied by a warehouse building with approximately 30,000 square feet of floor area and an office building with approximately 10,000 square feet of floor area. Vehicular access to the existing Project Site is provided via one driveway along the west side of La Patera Lane at the southern end of the Project Site and one gated driveway along the west side of La Patera Lane at the northern end of the Project Site.

### **2.3 Proposed Project Description**

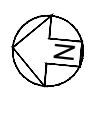
The Project seeks to remove the existing buildings and develop a train depot with approximately 9,000 square feet of building floor area. The Project proposes to provide 125 parking spaces within an on-site surface parking lot. Construction and occupancy of the proposed Project is planned to be completed by the year 2024. The site plan for the proposed Project is illustrated in *Figure 2-1*.

Vehicular access to the Project site will be provided via two driveways along the west side of La Patera Lane (i.e., along the Project Site's easterly frontage). Further discussion on the Project Site access and circulation schemes is provided in Section 3.0.



MAP SOURCE: ANIL VERMA ASSOCIATES, INC.

# FIGURE 2-1 PROJECT SITE PLAN



NOT TO SCALE

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GOLETA TRAIN DEPOT

### **3.0 SITE ACCESS AND CIRCULATION**

The proposed site access scheme for the Project is displayed in *Figure 2-1*. A description of the proposed site access and circulation scheme is provided in the following subsections.

#### **3.1 Existing Vehicular Site Access**

Vehicular access to the existing Project Site is provided via two driveways along the west side of La Patera Lane.

#### **3.2 Vehicular Project Site Access**

Vehicular access to the Project Site will be provided via two driveways along the west side of La Patera Lane. The driveways will provide access to the Project's on-site surface parking lot. The driveways are proposed to accommodate left-turn ingress movements and right-turn egress movements.

## 4.0 EXISTING STREET SYSTEM

### 4.1 Regional Highway System

Regional access to the Project Site is provided by the SR-217 (Ward Memorial Boulevard) Freeway and US-101 Freeway. Brief descriptions of the SR-217 and US-101 Freeways are provided in the following paragraphs.

*SR-217 (Ward Memorial Boulevard) Freeway* is an east-west state highway connecting the US-101 Freeway to the University of California, Santa Barbara. In the Project vicinity, two mixed-flow lanes are generally provided in each direction on the SR-217 Freeway. Eastbound and westbound ramps are provided on the SR-217 Freeway at Hollister Avenue in the Project vicinity and are located approximately 1.45 miles east of the Project Site.

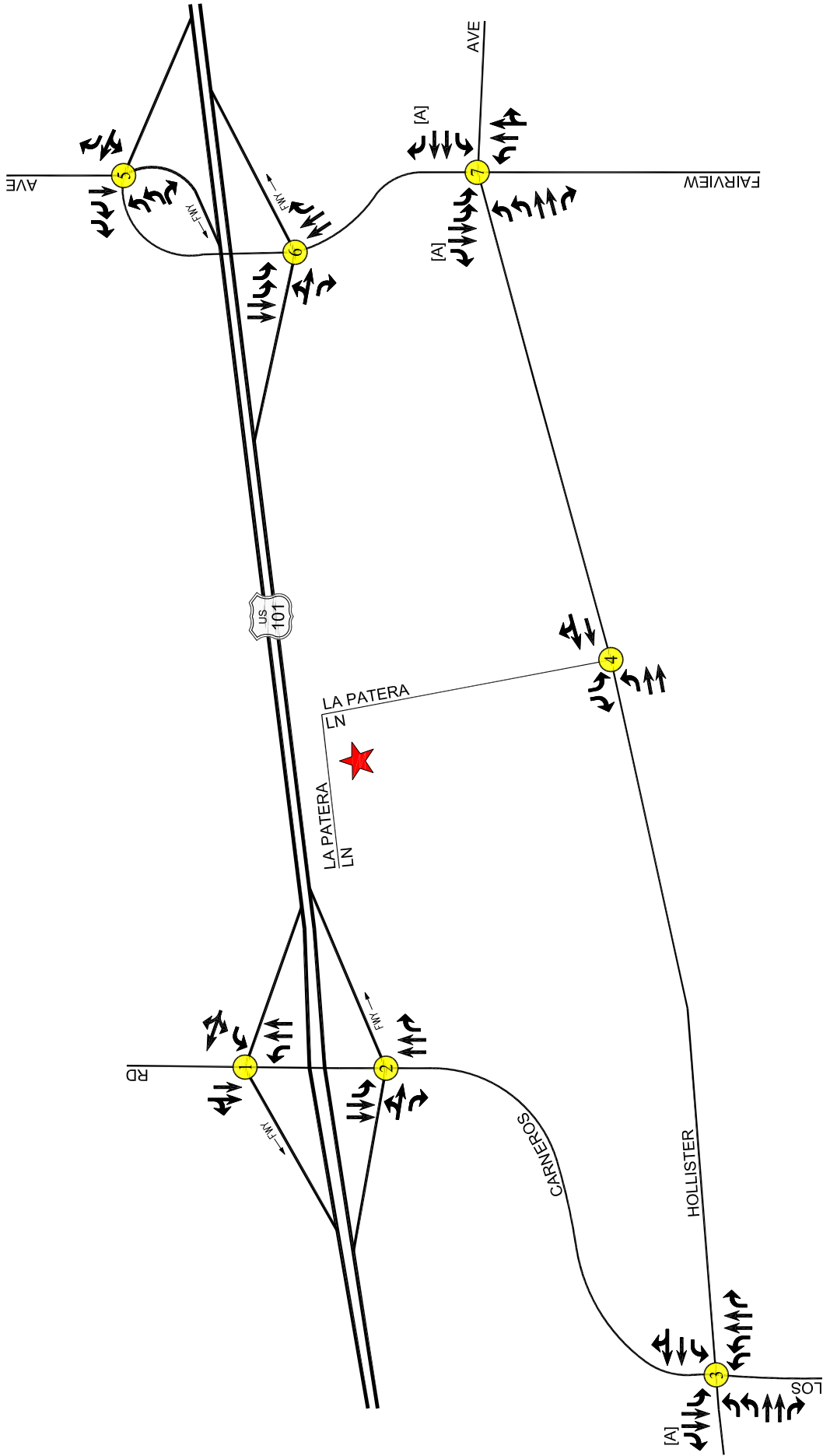
*US-101 Freeway* is a north-south oriented freeway that extends across Northern and Southern California. In the Project vicinity, two to three mixed-flow lanes are generally provided in each direction on the US-101 Freeway with auxiliary merge/weave lanes provided between some interchanges. Northbound and southbound ramps are provided on the US-101 Freeway at Los Carneros Road and Fairview Avenue in the Project vicinity, and are located approximately 0.55 miles west and 0.68 miles east of the Project Site, respectively.

### 4.2 Local Roadway System

Immediate access to the Project Site is provided via La Patera Lane. The following study intersections were selected for analysis of potential changes in operations due to the proposed Project:

1. Los Carneros Road / US-101 Northbound ramps (State of California)
2. Los Carneros Road / US-101 Southbound ramps (State of California)
3. Los Carneros Road / Hollister Avenue (City of Goleta)
4. La Patera Lane / Hollister Avenue (City of Goleta)
5. Fairview Avenue / US-101 Northbound ramps (State of California)
6. Fairview Avenue / US-101 Southbound ramps (State of California)
7. Fairview Avenue / Hollister Avenue (City of Goleta)

All seven study intersections selected for analysis are presently controlled by traffic signals. The existing lane configurations at the study intersections are displayed in *Figure 4-1*.



**FIGURE 4-1**  
**EXISTING LANE CONFIGURATIONS**

GOLETA TRAIN DEPOT

- ★ PROJECT SITE
- STUDY INTERSECTION
- [A] RIGHT-TURN OVERLAP

NOT TO SCALE

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### 4.3 Roadway Descriptions

A brief description of the roadways in the Project vicinity is provided in the following paragraphs.

*Los Carneros Road* is a north-south oriented roadway located west of the Project Site. Within the Project study area, Los Carneros Road is designated as a Principal Arterial by the City of Goleta. Two through lanes are generally provided in each direction on Los Carneros Road. Separate exclusive left-turn lanes are provided in each direction on Los Carneros Road at the Hollister Avenue intersection, and a separate exclusive left-turn lane is provided in the northbound direction at the US-101 Northbound ramps intersection. Los Carneros Road is posted for a speed limit of 45 miles per hour within the Project study area.

*La Patera Lane* is a north-south oriented roadway that borders the Project Site to the east. Within the Project study area, La Patera Lane is designated as a Major Collector by the City of Goleta. One through travel lane is provided in each direction on La Patera Lane within the Project study area. A separate exclusive left-turn lane is provided in the southbound direction on La Patera Lane at the Hollister Avenue intersection. There is no speed limit posted on La Patera Lane within the Project study area, thus a prima facie speed limit of 25 miles per hour is assumed, consistent with the State of California Vehicle Code Section 22352(b)(1).

*Fairview Avenue* is a north-south oriented roadway located east of the Project Site. North of Hollister Avenue, Fairview Avenue is designated as Principal Arterial by the City of Goleta. South of Hollister Avenue, Fairview Avenue is designated as a Major Collector by the City of Goleta. Two through travel lanes are generally provided in each direction on Fairview Avenue within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Fairview Avenue at the Hollister Avenue intersection. Separate exclusive left-turn lanes are provided in the northbound direction at the US-101 Northbound ramps intersection and in the southbound direction at the US-101 Southbound ramps intersection. Fairview Avenue is posted for a speed limit of 35 miles per hour within the Project study area.

*Hollister Avenue* is an east-west oriented roadway located south of the Project Site. Within the Project study area, Hollister Avenue is designated as a Principal Arterial by the City of Goleta. Two through travel lanes are generally provided in each direction on Hollister Avenue within the Project study area. Separate exclusive left-turn lanes are provided in each direction on Hollister Avenue at the Los Carneros Road intersection and at the Fairview Avenue intersection. A separate exclusive left-turn lane is provided in the eastbound direction at the La Patera Lane intersection. West of Fairview Avenue, Hollister Avenue is posted for a speed limit of 45 miles per hour within the Project study area. East of Fairview Avenue, Hollister Avenue is posted for a speed limit of 25 miles per hour within the Project study area.

#### 4.4 Public Transit Services

Public transit service within the Project study area is currently provided by the Santa Barbara Metropolitan Transit District (Santa Barbara MTD) and the Ventura County Transportation Commission (VCTC). A summary of the existing transit service, including the transit route, destinations and peak hour headways is presented in *Table 4-1*. The existing public transit routes in the Project site vicinity are illustrated in *Figure 4-2*.

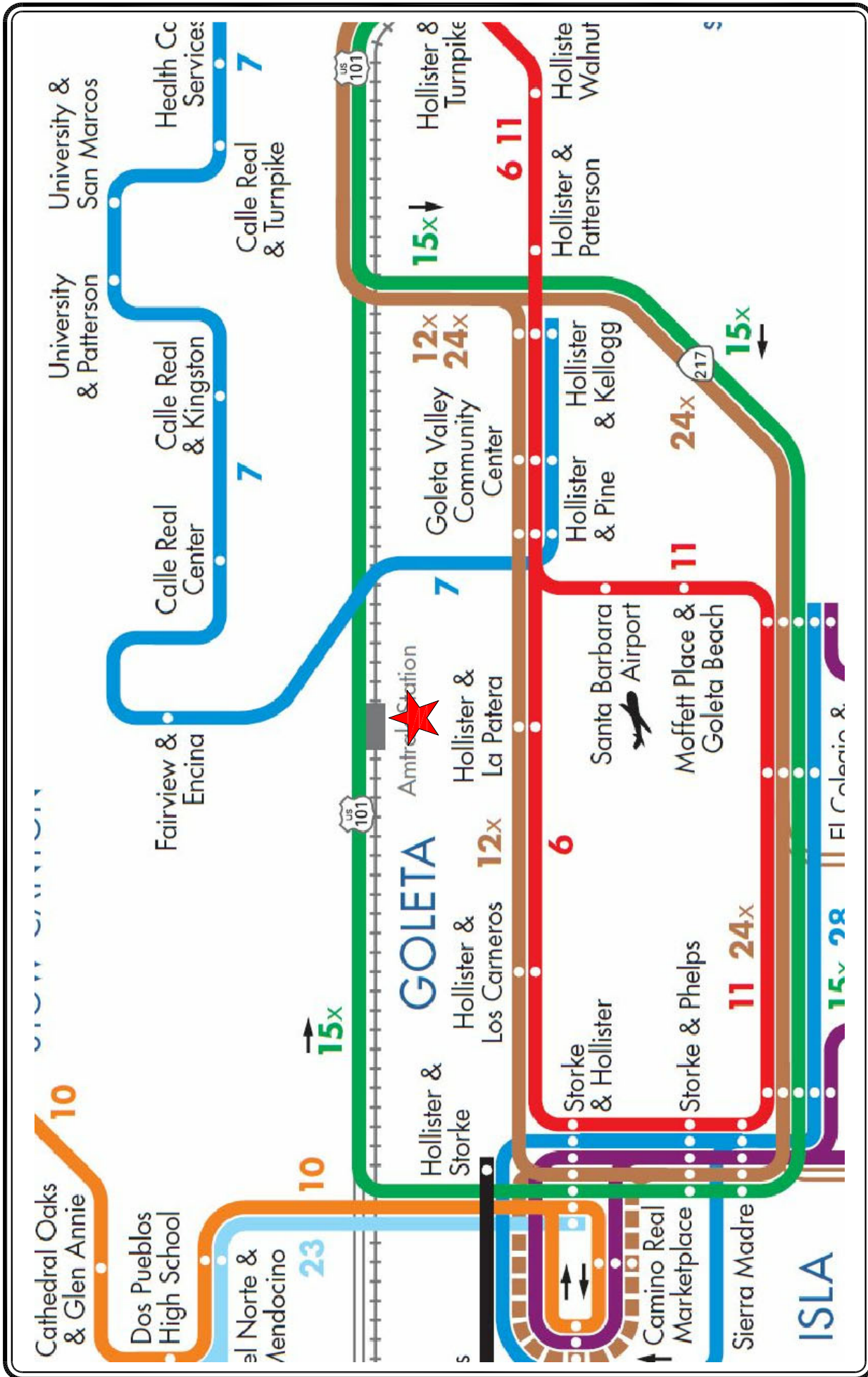


Table 4-1  
EXISTING PUBLIC TRANSIT ROUTES [1]

31-Aug-20

ROUTE	DESTINATIONS	ROADWAY(S) NEAR SITE	NO. OF BUSES/TRAINS DURING PEAK HOUR		
			DIR	AM	PM
Santa Barbara MTD 6	Downtown Santa Barbara to Goleta (via State Street, Hollister Avenue and Storke Road)	Hollister Avenue	EB	3	3
			WB	3	3
Santa Barbara MTD 7	Downtown Santa Barbara to Goleta (via Calle Real, Fairview Avenue and Hollister Avenue)	Fairview Avenue, Hollister Avenue	EB	2	2
			WB	2	2
Santa Barbara MTD 12X	Downtown Santa Barbara to Goleta (via US-101 Freeway, Ward Memorial Boulevard and Hollister Avenue)	Hollister Avenue	EB	2	2
			WB	2	2
VCTC Coastal Express 85	Camarillo to Goleta (via US-101 Freeway, Ward Memorial Boulevard and Hollister Avenue)	Hollister Avenue	NB	0	0
			SB	0	1
VCTC Coastal Express 85C	Camarillo to Goleta (via US-101 Freeway, Ward Memorial Boulevard and Hollister Avenue)	Hollister Avenue	NB	1	0
			SB	0	0
VCTC Coastal Express 86	Camarillo to Goleta (via US-101 Freeway, Ward Memorial Boulevard and Hollister Avenue)	Hollister Avenue	NB	1	0
			SB	0	1
VCTC Coastal Express 88	Ventura to University of California, Santa Barbara (via US-101 Freeway, Hollister Avenue, Los Cameros Road, and Ocean Road)	Los Cameros Road, Hollister Avenue	NB	1	0
			SB	0	0
<b>Total</b>			<b>17</b>	<b>16</b>	

[1] Sources: Santa Barbara Metropolitan Transit District (Santa Barbara MTD) website, 2020.  
Ventura County Transportation Commission (VCTC) website, 2020.



**FIGURE 4-2**  
**EXISTING PUBLIC TRANSIT ROUTES**

## 5.0 VEHICLE MILES TRAVELED ASSESSMENT

### 5.1 Introduction

VMT is defined as a measurement of miles traveled by vehicles within a specified region and for a specified time period. VMT is a measure of the use and efficiency of the transportation network. VMTs are calculated based on individual vehicle trips generated and their associated trip lengths. VMT accounts for two-way (round-trip) travel and is often estimated for a typical weekday for the purposes of measuring transportation impacts.

In September 2013, the Governor's Office signed Senate Bill 743 (SB 743), starting a process that fundamentally changes the way transportation impact analysis is conducted under the California Environmental Quality Act. Within the State's CEQA Guidelines, these changes include the elimination of auto delay, LOS, and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant traffic impacts. SB 743 identifies VMT as the most appropriate CEQA transportation metric, along with the elimination of auto delay/LOS for CEQA purposes statewide. The justification for this paradigm shift is that LOS impacts lead to improvements that increase roadway capacity and therefore induce more traffic and greenhouse gas emissions.

In July 2020, the Goleta City Council formally adopted VMT as the criteria for determining transportation impacts of development projects in Resolution No. 20-44. The Resolution includes VMT guidelines and thresholds for measuring transportation impacts under CEQA. Accordingly, a VMT assessment has been prepared of the Project's potential VMT impact based on the guidelines presented in the Resolution.

### 5.2 Project VMT

In accordance with the technical advisory issued by the Governor's Office of Planning and Research<sup>2</sup>, the Resolution states that transportation projects such as transit and active transportation projects "would not likely lead to a measurable or substantial increase in vehicle travel, and are therefore presumed to cause a less than significant impact" regarding VMT. The Project consists of the development of a train depot and is therefore classified as a transit project. Thus, in accordance with the State of California's technical advisory and the City of Goleta's VMT guidelines presented in Resolution No. 20-44, the Project is not expected to result in a substantial increase in vehicle travel and is deemed to have a less than significant VMT impact. Accordingly, no mitigation measures related to VMT are required or recommended in conjunction with the Project.

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<sup>2</sup> *Technical Advisory on Evaluating Transportation Impacts in CEQA*, Governor's Office of Planning and Research, December 2018

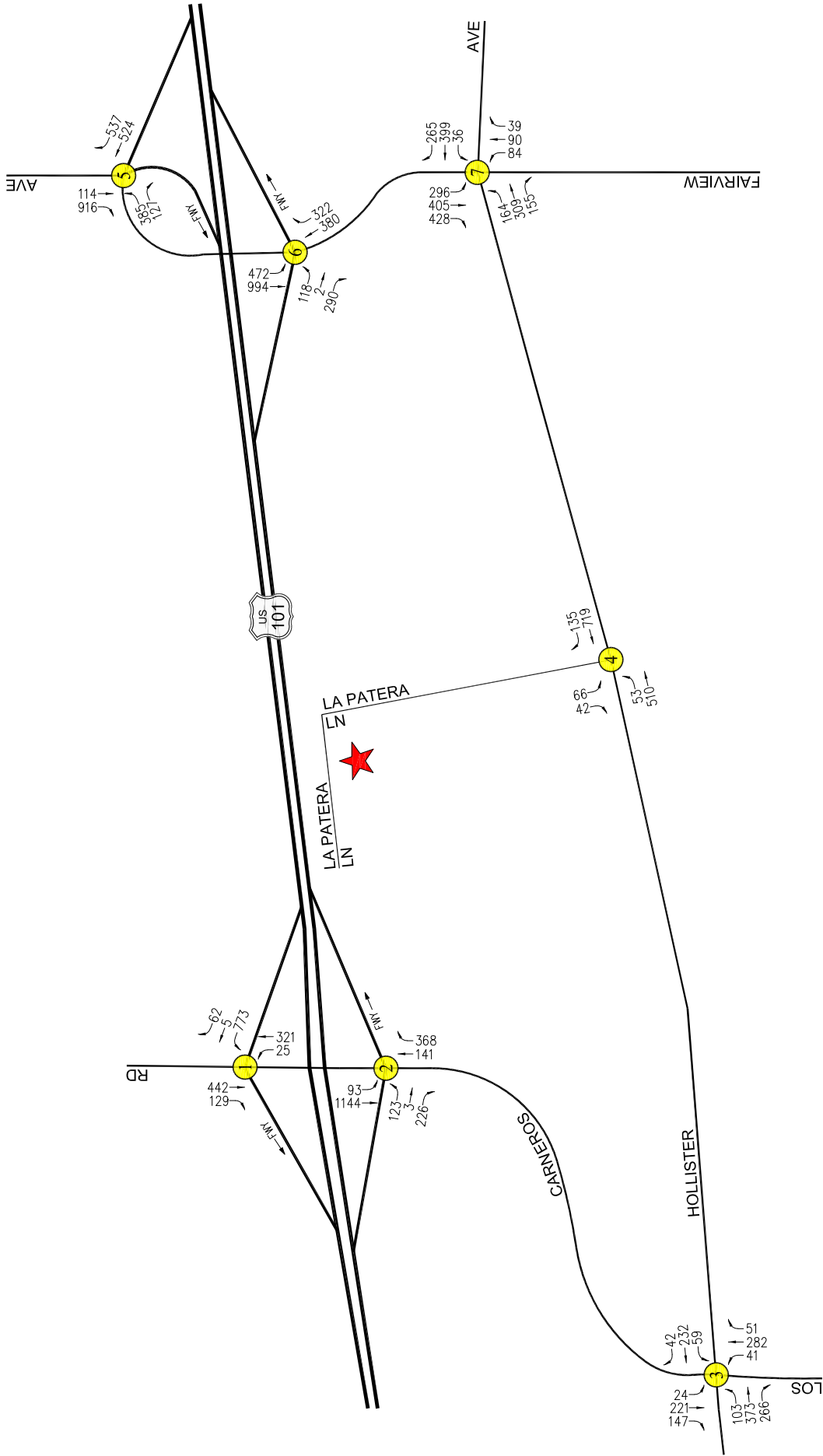
## 6.0 TRAFFIC COUNTS

The City's Resolution requires that a Level of Service (LOS) analysis be performed at the local level, per Policy TE-4 of the City's General Plan. Due to the Covid-19 pandemic, traffic count data could not be collected at the study intersections. In consultation with City staff, historical data at the study intersections was utilized to represent current (pre-pandemic) traffic volume conditions. The historical data was taken from peak hour traffic volume data collected at the following study intersections in the years 2007 and 2019:

1. Los Carneros Road / US-101 Northbound ramps (2007)
2. Los Carneros Road / US-101 Southbound ramps (2007)
3. Los Carneros Road / Hollister Avenue (2007)
4. La Patera Lane / Hollister Avenue (2007)
5. Fairview Avenue / US-101 Northbound ramps (2019)
6. Fairview Avenue / US-101 Southbound ramps (2019)
7. Fairview Avenue / Hollister Avenue (2019)

While appropriate modifications are normally applied to historical data to estimate current year (2020) peak hour turning movement traffic volumes at the study intersections, a comparison between the historical data collected at the study intersections in the years 2007 and 2019 indicated that counts conducted in the year 2007 were greater than counts conducted in the year 2019. Therefore, the existing traffic volumes were determined directly from the historical data at the study intersections (i.e., no adjustments are required to the historical data to represent existing conditions).

The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are shown in **Figures 6-1** and **6-2**, respectively. Summary data worksheets of the historical traffic counts at the study intersections are contained in **Appendix A**.

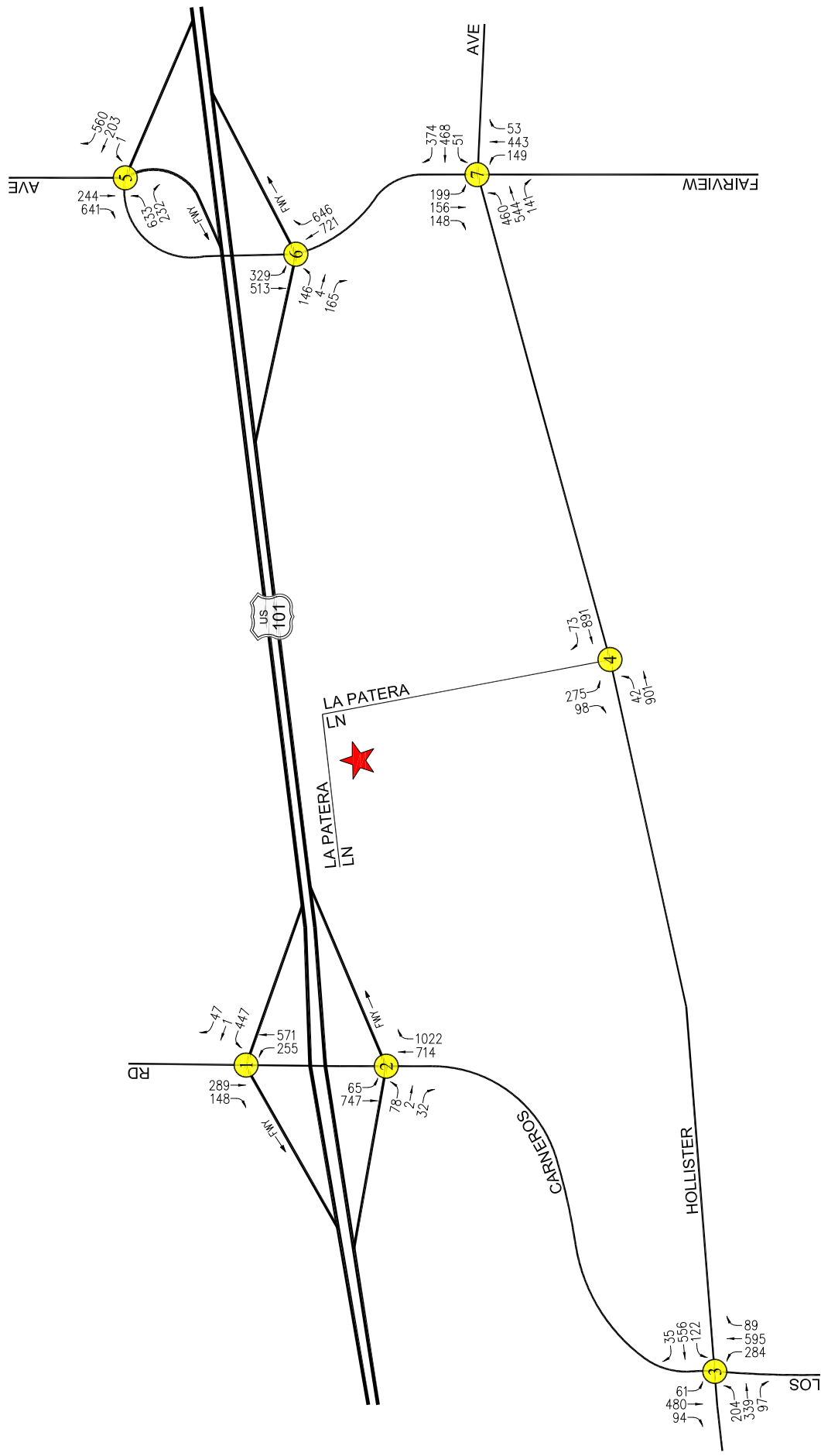


**FIGURE 6-1**  
**EXISTING TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 GOLETA TRAIN DEPOT




★ PROJECT SITE  
 ⓧ STUDY INTERSECTION

NOT TO SCALE

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**FIGURE 6-2**  
**EXISTING TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 GOLETA TRAIN DEPOT

 **NOT TO SCALE**  
 PROJECT SITE  
 STUDY INTERSECTION  
 LINSKOTT, LAW & GREENSPAN, engineers

## 7.0 FUTURE CONDITIONS

The forecast of future pre-Project conditions was prepared in consultation with City staff. For developing a future traffic volume forecast, an ambient traffic growth factor was applied in this traffic analysis.

### 7.1 Ambient Traffic Growth Factor

In order to account for unknown development projects (related projects) in the area, the existing traffic volumes were increased at an annual rate of 2.0 percent (2.0%) per year to the year 2024 (i.e., the anticipated year of Project build-out). The ambient growth factor was estimated from existing 2019 peak hour traffic volumes and future 2022 peak hour traffic volumes for a related transportation project<sup>3</sup> (the Ekwill Extension project) in the Project study area. Based on the Ekwill traffic study, the traffic growth projections are derived from the City's Goleta Travel Model. The Goleta Travel Model forecasts future year 2042 traffic volumes based on, for example:

- Buildout of the Goleta General Plan,
- Buildout of the County of Santa Barbara's Eastern Goleta Valley Community Plan, Isla Vista Specific Plan, and Gaviota Community Plan,
- Buildout of the University of California at Santa Barbara Long Range Plan, and
- Buildout of the Santa Barbara Airport Master Plan and Airport Specific Plan.

The Goleta Travel Model was completed in 2017. On an approximate basis, the approximate annual traffic growth on the streets located in the Project study area is expected to be approximately 1% per year. Therefore, the use of 2% annual traffic growth factor for purposes of forecasting future pre-Project traffic volumes in the year 2022 is considered to be conservative.

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<sup>3</sup> *Ekwill Extension Circulation Improvement Traffic Impact Analysis*, GHD Group, March 2020.

## 8.0 TRAFFIC FORECASTING METHODOLOGY

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

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

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

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

### 8.1 Project Traffic Generation

Traffic volumes expected to be generated by the proposed Project during the weekday AM and PM peak hours, as well as on a daily basis, were estimated using rates published in the ITE *Trip Generation Manual*. The following trip generation rates were used to forecast the traffic volumes expected to be generated by the Project:

- Train Depot: ITE Land Use Code 90 (Park-and-Ride Lot with Bus or Light Rail Service) trip generation average rates were used to forecast the traffic volumes expected to be generated by the Project.

In addition to the trip generation forecasts for the proposed Project (which are essentially an estimate of the number of vehicles that could be expected to enter and exit the Project Site access points), an adjustment was made to the trip generation forecast based on the Project Site's existing land uses. The existing land use to be removed is a building providing 30,000 square feet of warehouse floor area and 10,000 square feet of office floor area. ITE Land Use Code 150 (Warehousing) and ITE Land Use Code 710 (General Office Building) trip generation average rates were used to estimate the trip reduction related to the removal of the existing uses from the Project Site.



As presented in *Table 8-1*, the proposed Project is expected to generate 36 net new vehicle trips (28 inbound trips and 8 outbound trips) during the AM peak hour. During the PM peak hour, the proposed Project is expected to generate 36 net new vehicle trips (10 inbound trips and 26 outbound trips). Over a 24-hour period, the proposed Project is forecast to generate 202 daily trips ends (approximately 101 inbound trips and 101 outbound trips) during a typical weekday.

## 8.2 Project Traffic Distribution and Assignment

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

- The site's proximity to major traffic corridors (i.e., Los Carneros Road, Fairview Avenue, Hollister Avenue, US-101 Freeway, etc.);
- Expected localized traffic flow patterns based on adjacent roadway channelization and presence of traffic signals;
- Existing intersection traffic volumes;
- Ingress/egress availability at the Project Site assuming the site access and circulation scheme described in Section 3.0;
- The location of existing and proposed parking areas;
- Nearby population and employment centers as well as adjacent residential neighborhoods;
- Input from City staff.

The general, directional traffic distribution patterns for the proposed Project are presented in *Figure 8-1*. The forecast net new weekday AM and PM peak hour Project traffic volumes at the study intersections associated with the proposed Project are presented in *Figures 8-2* and *8-3*, respectively. The traffic volume assignments presented in *Figures 8-2* and *8-3* reflect the traffic distribution characteristics shown in *Figure 8-1* and the Project traffic generation forecast presented in *Table 8-1*.

**Table 8-1  
PROJECT TRIP GENERATION [1]**

31-Aug-20

LAND USE	SIZE	DAILY TRIP ENDS [2] VOLUMES	AM PEAK HOUR VOLUMES [2]		PM PEAK HOUR VOLUMES [2]	
			IN	OUT	IN	OUT
<b>Proposed Project</b> Train Depot [3]	125 Spaces	351	42	11	14	40
<b>Subtotal Project Driveway Trips</b>		<b>351</b>	<b>42</b>	<b>11</b>	<b>14</b>	<b>40</b>
<b>Existing Site</b> Warehouse [4] Office [5] <b>Subtotal</b>	(30,000) GSF (10,000) GSF	(52) (97) (149)	(4) (10) (14)	(1) (2) (3)	(2) (2) (4)	(4) (10) (14)
<b>Subtotal Existing Driveway Trips</b>		<b>(149)</b>	<b>(14)</b>	<b>(3)</b>	<b>(4)</b>	<b>(14)</b>
<b>NET INCREASE DRIVEWAY TRIPS</b>		<b>202</b>	<b>28</b>	<b>8</b>	<b>10</b>	<b>26</b>
						<b>36</b>
						<b>36</b>
						<b>(18)</b>
						<b>(18)</b>
						<b>(6)</b>
						<b>(12)</b>
						<b>(18)</b>

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

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

[3] ITE Land Use Code 90 (Park-and-Ride Lot with Bus or Light Rail Service) trip generation average rates.

- Daily Trip Rate: 2.81 trips/parking space; 50% inbound/50% outbound

- AM Peak Hour Trip Rate: 0.42 trips/parking space; 79% inbound/21% outbound

- PM Peak Hour Trip Rate: 0.43 trips/parking space; 25% inbound/75% outbound

[4] ITE Land Use Code 150 (Warehousing) trip generation average rates.

- Daily Trip Rate: 1.74 trips/1,000 SF of floor area; 50% inbound/50% outbound

- AM Peak Hour Trip Rate: 0.17 trips/1,000 SF of floor area; 77% inbound/23% outbound

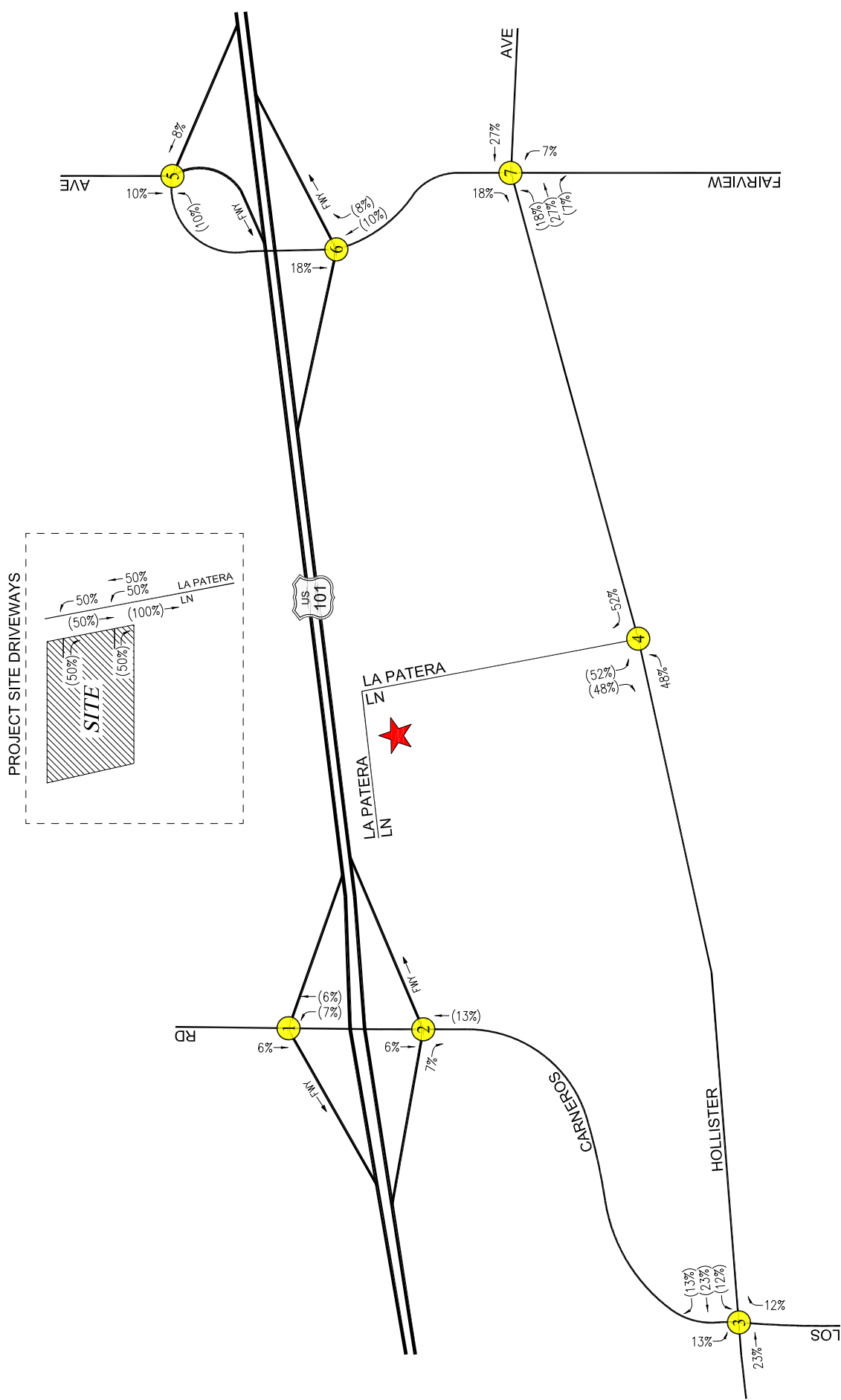
- PM Peak Hour Trip Rate: 0.19 trips/1,000 SF of floor area; 27% inbound/73% outbound

[5] ITE Land Use Code 710 (General Office Building) trip generation average rates.

- Daily Trip Rate: 9.74 trips/1,000 SF of floor area; 50% inbound/50% outbound

- AM Peak Hour Trip Rate: 1.16 trips/1,000 SF of floor area; 86% inbound/14% outbound

- PM Peak Hour Trip Rate: 1.15 trips/1,000 SF of floor area; 16% inbound/84% outbound



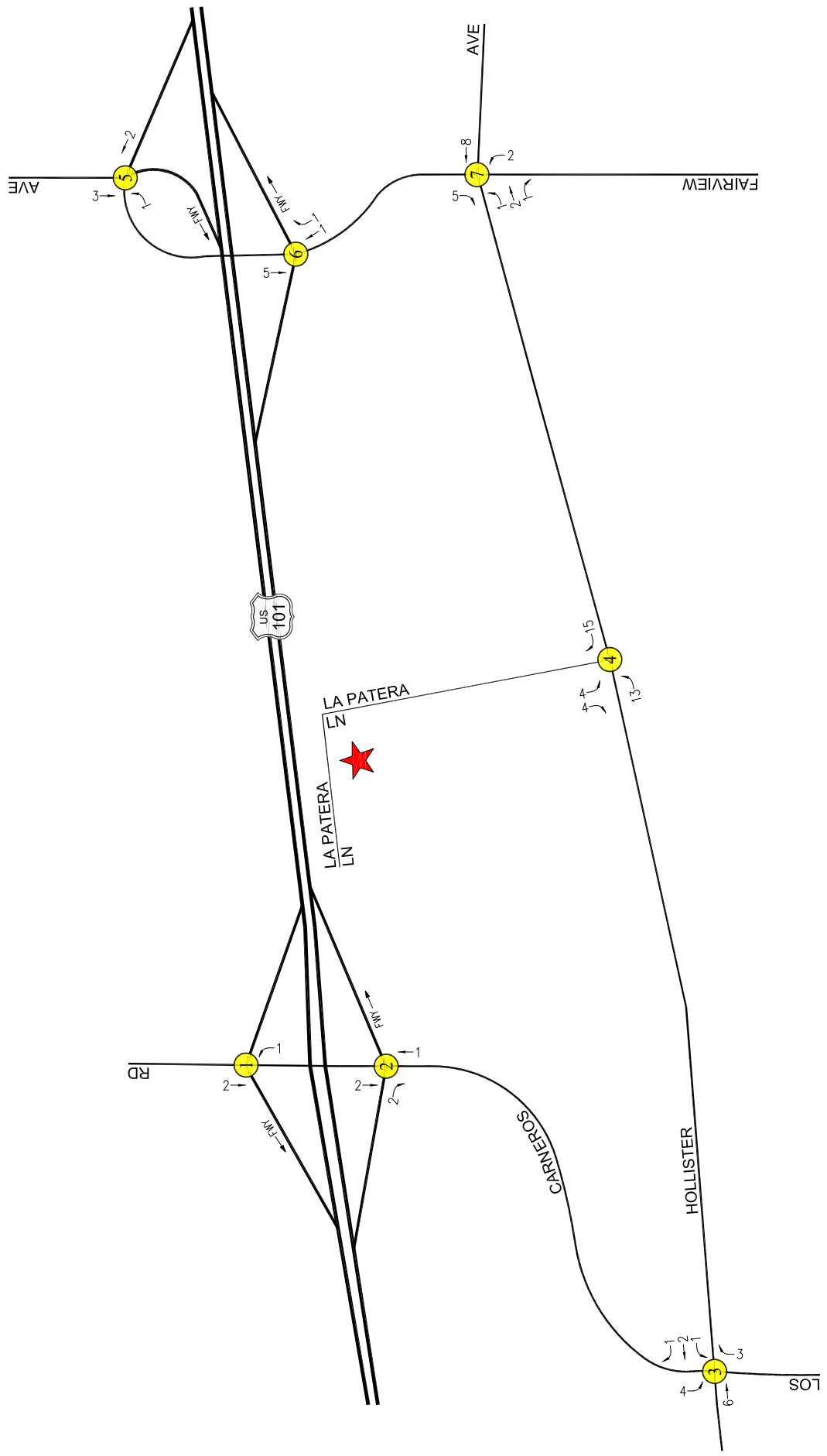
**FIGURE 8-1**  
**PROJECT TRIP DISTRIBUTION**

★ PROJECT SITE  
 Ⓧ STUDY INTERSECTION  
 ## = INBOUND PERCENTAGES  
 (##) = OUTBOUND PERCENTAGES




NOT TO SCALE

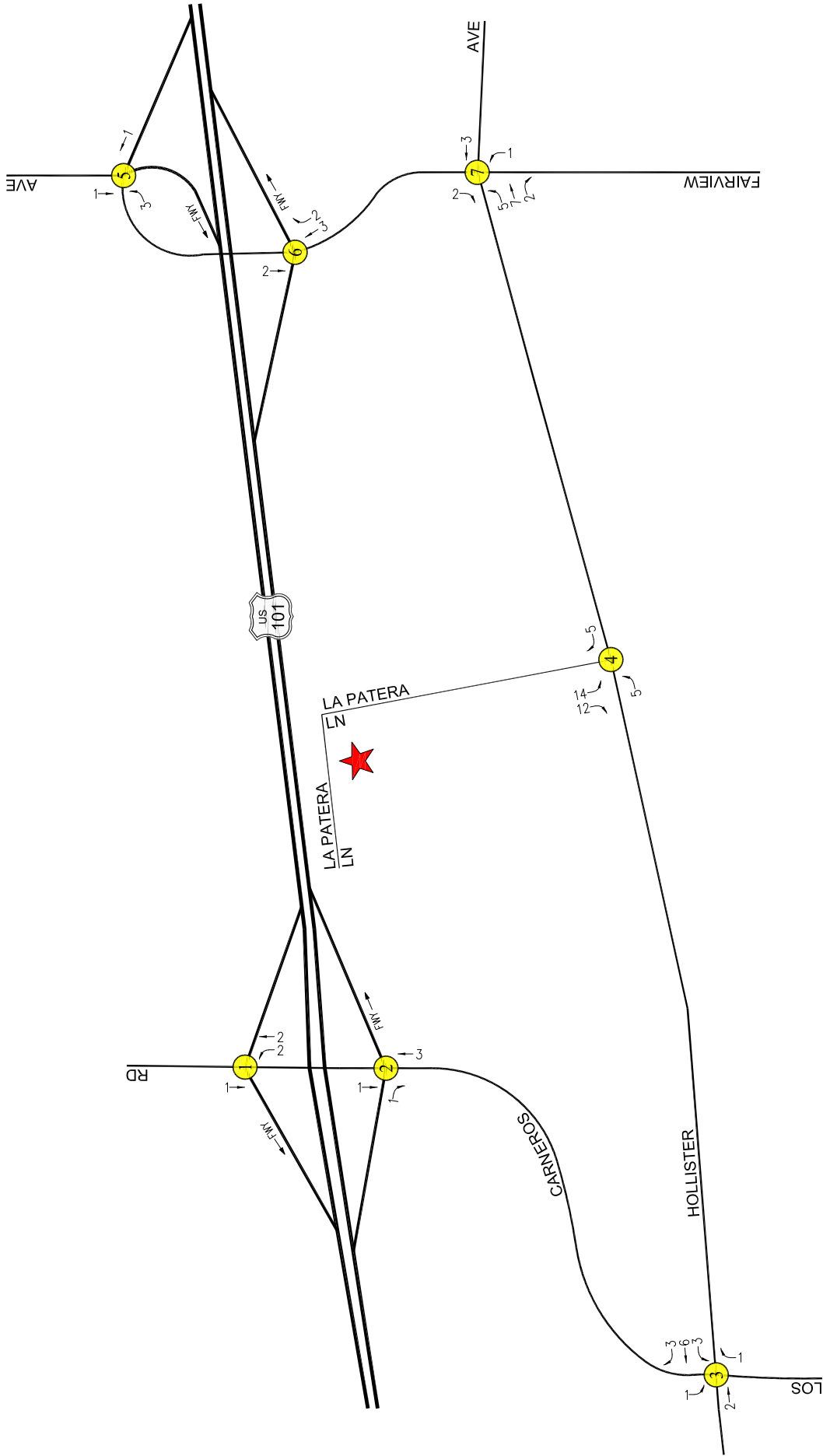
LINSCOTT, LAW & GREENSPAN, engineers

GOLETA TRAIN DEPOT



**FIGURE 8-2**  
**NET NEW PROJECT TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 GOLETA TRAIN DEPOT

 **NOT TO SCALE**  
 PROJECT SITE  
 STUDY INTERSECTION  
 LINSOTT, LAW & GREENSPAN, engineers



**FIGURE 8-3**  
**NET NEW PROJECT TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 GOLETA TRAIN DEPOT

★ PROJECT SITE  
 ⓧ STUDY INTERSECTION

NOT TO SCALE

LINSCOTT, LAW & GREENSPAN, engineers

## 9.0 TRAFFIC OPERATIONS ANALYSIS METHODOLOGY

Three of the study intersections are located within the City of Goleta, and therefore were evaluated using the Intersection Capacity Analysis (ICU) method of analysis. Specifically, the ICU method was used to determine  $v/c$  ratios and corresponding Levels of Service at the three study intersections as the ICU method is used for traffic analysis purposes in the City of Goleta. The ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through, and right-turn lanes, and dual left-turn capacity of 2,800 vph. A clearance adjustment factor of 0.10 was added to each ICU Level of Service calculation.

A supplemental traffic analysis was prepared using the Highway Capacity Manual<sup>4</sup> (HCM 6<sup>th</sup> Edition) method for the four study intersections located within the State of California Department of Transportation (Caltrans) jurisdiction. Specifically, the HCM 6<sup>th</sup> Edition methodology estimates the average control delay for each of the subject movements and determines the LOS for each constrained movement. The overall intersection average control delay is subsequently assigned a LOS value to describe intersection operations. Intersection analyses were prepared utilizing the *Synchro 10* software package for the study intersections within Caltrans jurisdiction. The *Synchro 10* software package implements HCM 6<sup>th</sup> Edition operational methods.

The Levels of Service under the ICU and HCM 6<sup>th</sup> Edition methodologies for signalized intersections vary from LOS A (free flow) to LOS F (jammed condition). A description of the ICU and HCM 6<sup>th</sup> Edition methods and corresponding LOS are provided in *Appendix B* and *C*, respectively.

### 9.1 Intersection Operations Criteria

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

#### 9.1.1 City of Goleta Criteria

The potential effects of Project-generated traffic were evaluated using the traffic operations criteria set forth in the City of Goleta *Environmental Review Guidelines*, August 2008. According to the City's published traffic study guidelines, the operations criteria is exceeded if the Project-related increase in the  $v/c$  ratio or number of peak hour trips is equal to or exceeds the thresholds presented in *Table 9-1* for intersections located within the City of Goleta.

---

<sup>4</sup> *Highway Capacity Manual 6<sup>th</sup> Edition*, Transportation Research Board of the National Academies of Sciences-Engineering-Medicine, 2016.

Table 9-1 CITY OF GOLETA INTERSECTION OPERATIONS CRITERIA			
Final v/c	Level of Service	Project-Related Increase in v/c	Project-Related Increase in Peak Hour Trips
≤0.60	A	equal to or greater than 0.20	--
0.61-0.70	B	equal to or greater than 0.15	--
0.71-0.80	C	equal to or greater than 0.10	--
0.81-0.90	D	--	equal to or greater than 15 trips
0.91-1.00	E	--	equal to or greater than 10 trips
>1.00	F	--	equal to or greater than 5 trips

For the study intersections located within Caltrans jurisdiction, the relative traffic effects were assessed based on the target LOS (i.e., the transition between stable and unstable flow) established by the Caltrans *Guide for the Preparation of Traffic Impact Studies*, December 2002. **Table 9-2** provides the LOS criteria, type of flow, and thresholds of significance for study intersections under Caltrans jurisdiction.

Table 9-2 STATE OF CALIFORNIA (CALTRANS) LOS AND INTERSECTION OPERATIONS CRITERIA			
Control Delay (sec / veh)	Type of Flow	Level of Service	Project-Related Increase in Delay
≤10	Stable Flow	A	--
10-20	Stable Flow	B	--
20-35	Stable Flow	C	--
35-55	Approaching Unstable Flow	D	--
55-80	Unstable Flow	E	equal to or greater than 5 seconds
>80	Forced Flow	F	equal to or greater than 5 seconds

As required by the City of Goleta and State of California, measures may be required whenever traffic generated by the proposed development causes an increase of the analyzed intersection v/c ratio, number of peak hour trips, or delay by an amount equal to or greater than the values shown above.

## 9.2 Traffic Analysis Scenarios

LOS calculations have been prepared for the following scenarios for the seven study intersections located within the City of Goleta and the State of California:

- (a) Existing (2020) conditions.
- (b) Condition (a) with completion and occupancy of the Project.
- (c) Condition (b) with implementation of Project measures where necessary.
- (d) Condition (a) plus two percent (2.0%) annual ambient traffic growth through year 2024 (i.e., future cumulative baseline).
- (e) Condition (d) with completion and occupancy of the Project.
- (f) Condition (e) with implementation of Project measures where necessary.

The traffic volumes for each new condition were added to the volumes in the prior condition to determine the change in capacity utilization at the study intersections.



## 10.0 CITY OF GOLETA TRAFFIC ANALYSIS

The traffic analysis prepared for the three study intersections located within the City of Goleta using the ICU methodology and application of the City of Goleta traffic operations criteria is summarized in *Table 10-1*. The ICU data worksheets for the analyzed intersections are contained in *Appendix B*.

### 10.1 Existing Conditions

#### 10.1.1 Existing Conditions

As indicated in column [1] of *Table 10-1*, the three study intersections located within the City of Goleta are presently operating at LOS B or better during the weekday AM and PM peak hours under existing conditions. The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 6-1* and *6-2*, respectively.

#### 10.1.2 Existing with Project Conditions

As shown in column [2] of *Table 10-1*, application of the City's threshold criteria to the "Existing with Project" scenario indicates that Project-related traffic is not expected to exceed the traffic operations criteria at any of the three study intersections. Therefore, no measures are required or recommended with respect to these intersections under the "Existing with Project" conditions. The existing with project traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 10-1* and *10-2*, respectively.

### 10.2 Future Conditions

#### 10.2.1 Future Cumulative Baseline Conditions

The future cumulative baseline conditions were forecast based on the addition of traffic generated by the growth in traffic due to the combined effects of continuing development, intensification of existing developments and other factors (i.e., ambient growth). The  $v/c$  ratios at all of the study intersections are incrementally increased with the addition of ambient traffic.

As presented in column [3] of *Table 10-1*, the three study intersections located within the City of Goleta are expected to operate at LOS B or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic under the future cumulative baseline conditions. The future cumulative baseline (existing and ambient growth) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in *Figures 10-3* and *10-4*, respectively.

**Table 10-1  
SUMMARY OF VOLUME TO CAPACITY RATIOS  
AND LEVELS OF SERVICE  
AM AND PM PEAK HOURS  
CITY OF GOLETA INTERSECTIONS**

02-Sep-20

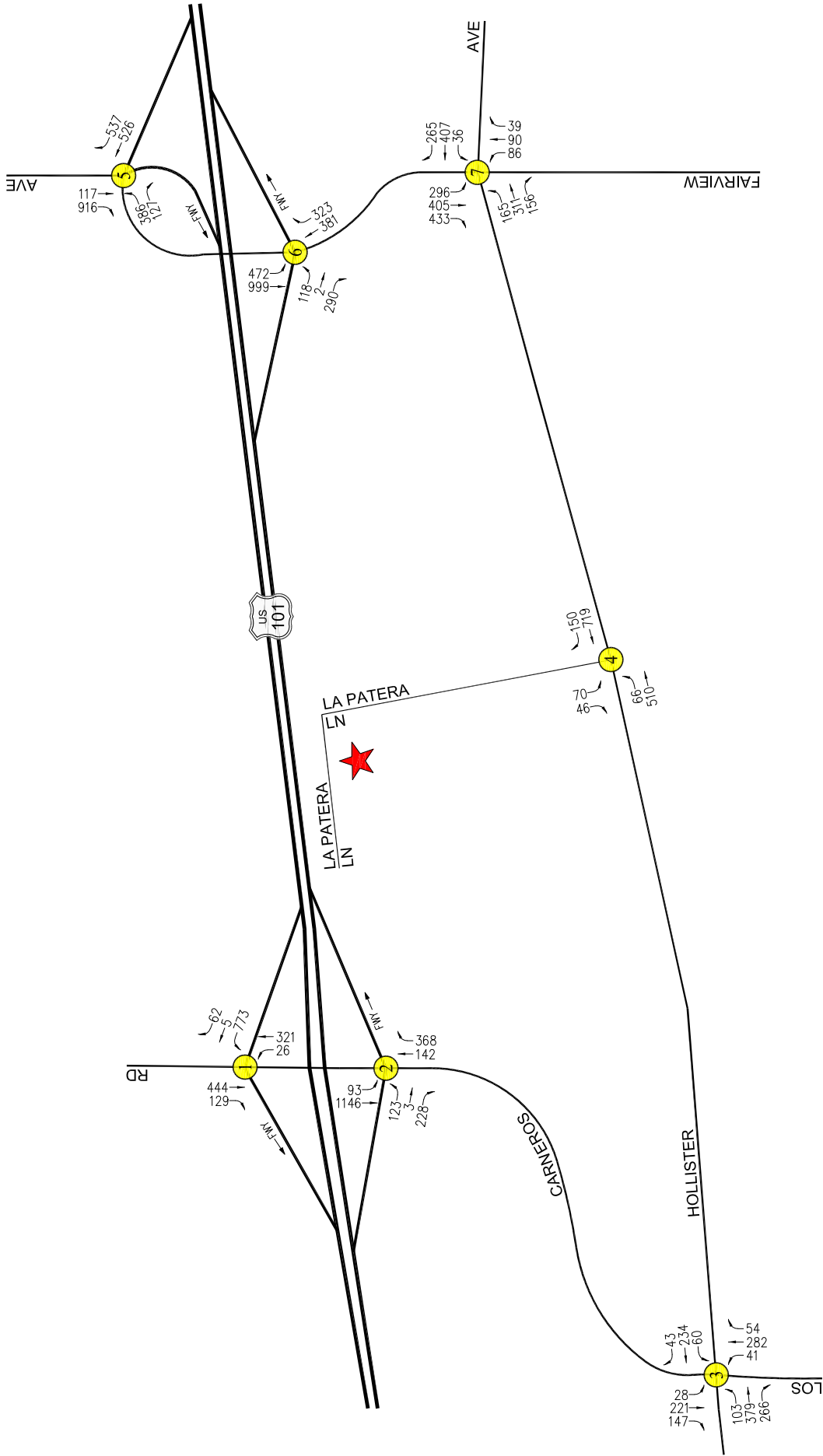
NO.	INTERSECTION	PEAK HOUR	[1]		[2]			[3]		[4]				
			YEAR 2020 EXISTING V/C	YEAR 2020 LOS [a]	YEAR 2020 EXISTING W/PROJECT V/C	YEAR 2020 LOS	CHANGE IN V/C [(2)-(1)]	CRITERIA EXCEEDED [b]	YEAR 2024 FUTURE PROJECT V/C	YEAR 2024 PRE-PROJECT LOS [a]	YEAR 2024 FUTURE PROJECT W/V/C	YEAR 2024 LOS	CHANGE IN V/C [(4)-(3)]	CRITERIA EXCEEDED [b]
3	Los Carneros Road / Hollister Avenue	AM PM	0.406 0.587	A A	0.409 0.590	A A	0.003 0.003	NO NO	0.431 0.627	A B	0.434 0.630	A B	0.003 0.003	NO NO
4	La Patera Lane / Hollister Avenue	AM PM	0.441 0.599	A A	0.457 0.613	A B	0.016 0.014	NO NO	0.469 0.640	A B	0.484 0.654	A B	0.015 0.014	NO NO
7	Fairview Avenue / Hollister Avenue	AM PM	0.545 0.633	A B	0.552 0.634	A B	0.007 0.001	NO NO	0.581 0.677	A B	0.588 0.678	A B	0.007 0.001	NO NO

[a] Signalized Intersection Levels of Service were based on the following criteria:

V/C Ratio	LOS
<= 0.60	A
0.61-0.70	B
0.71-0.80	C
0.81-0.90	D
0.91-1.00	E
> 1.00	F

[b] According to the City of Goleta, intersection operations are evaluated based on the following criteria:

Level of Service	Project-Related Increase in V/C	Level of Service	Project-Related Increase in Peak Hour Trips
A	equal to or greater than 0.20	D	equal to or greater than 15 trips
B	equal to or greater than 0.15	E	equal to or greater than 10 trips
C	equal to or greater than 0.10	F	equal to or greater than 5 trips

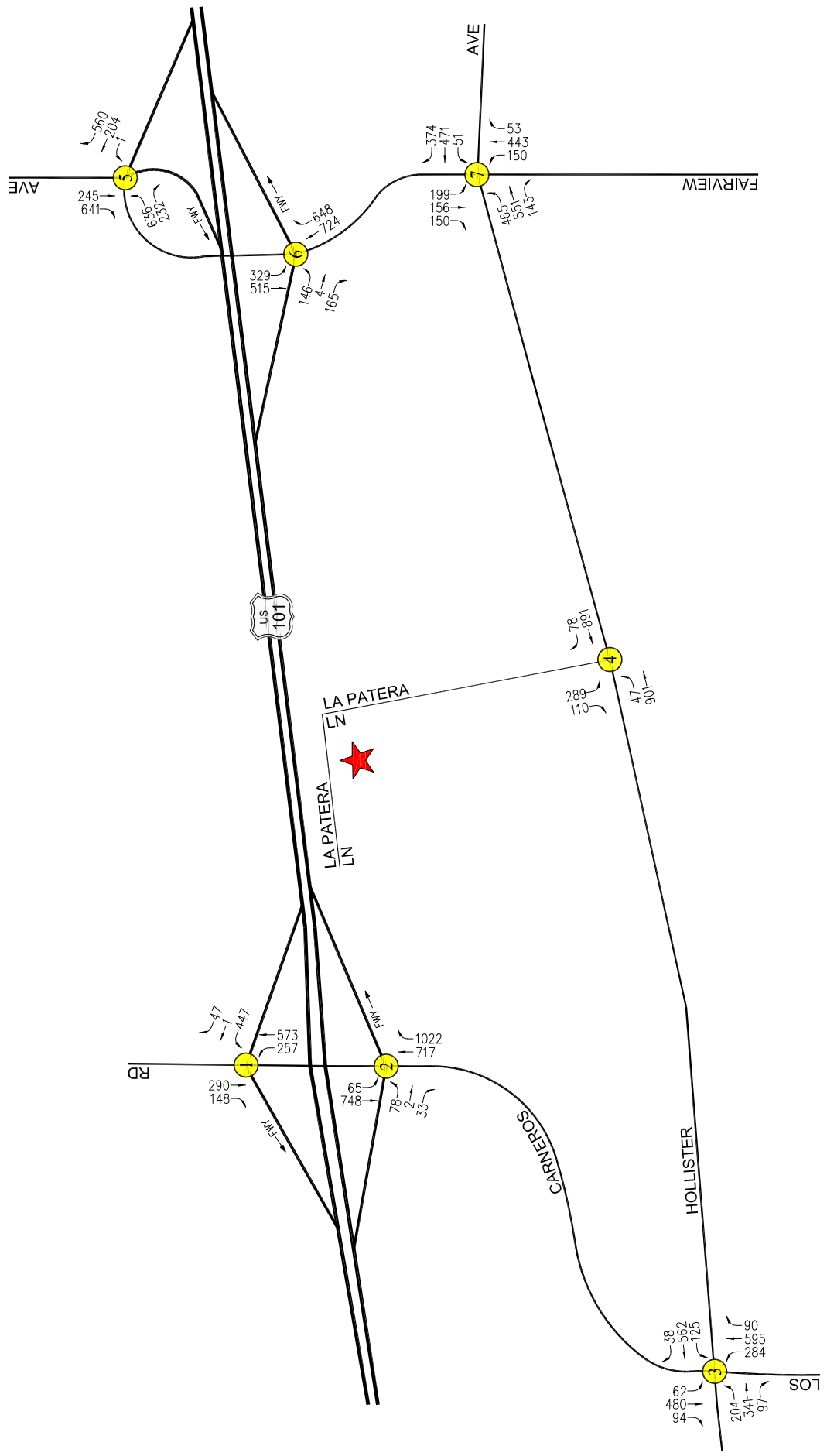


**FIGURE 10-1**  
**EXISTING WITH PROJECT TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 GOLETA TRAIN DEPOT




★ PROJECT SITE  
 ⓧ STUDY INTERSECTION

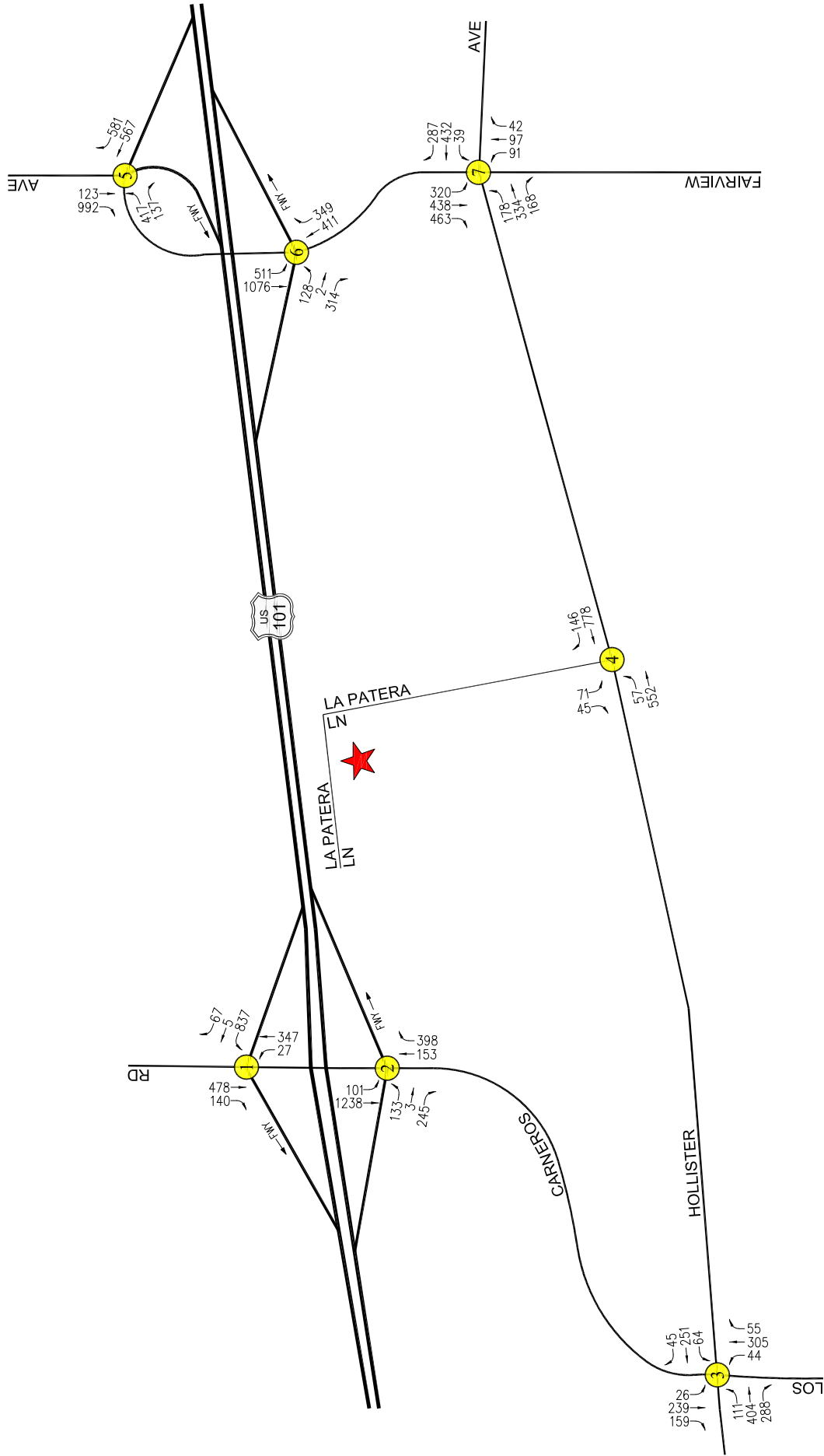
⬆ N  
**NOT TO SCALE**

LINSCOTT, LAW & GREENSPAN, engineers



**FIGURE 10-2**  
**EXISTING WITH PROJECT TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 GOLETA TRAIN DEPOT

 **NOT TO SCALE**  
 PROJECT SITE  
 STUDY INTERSECTION  
 LINSKOTT, LAW & GREENSPAN, engineers

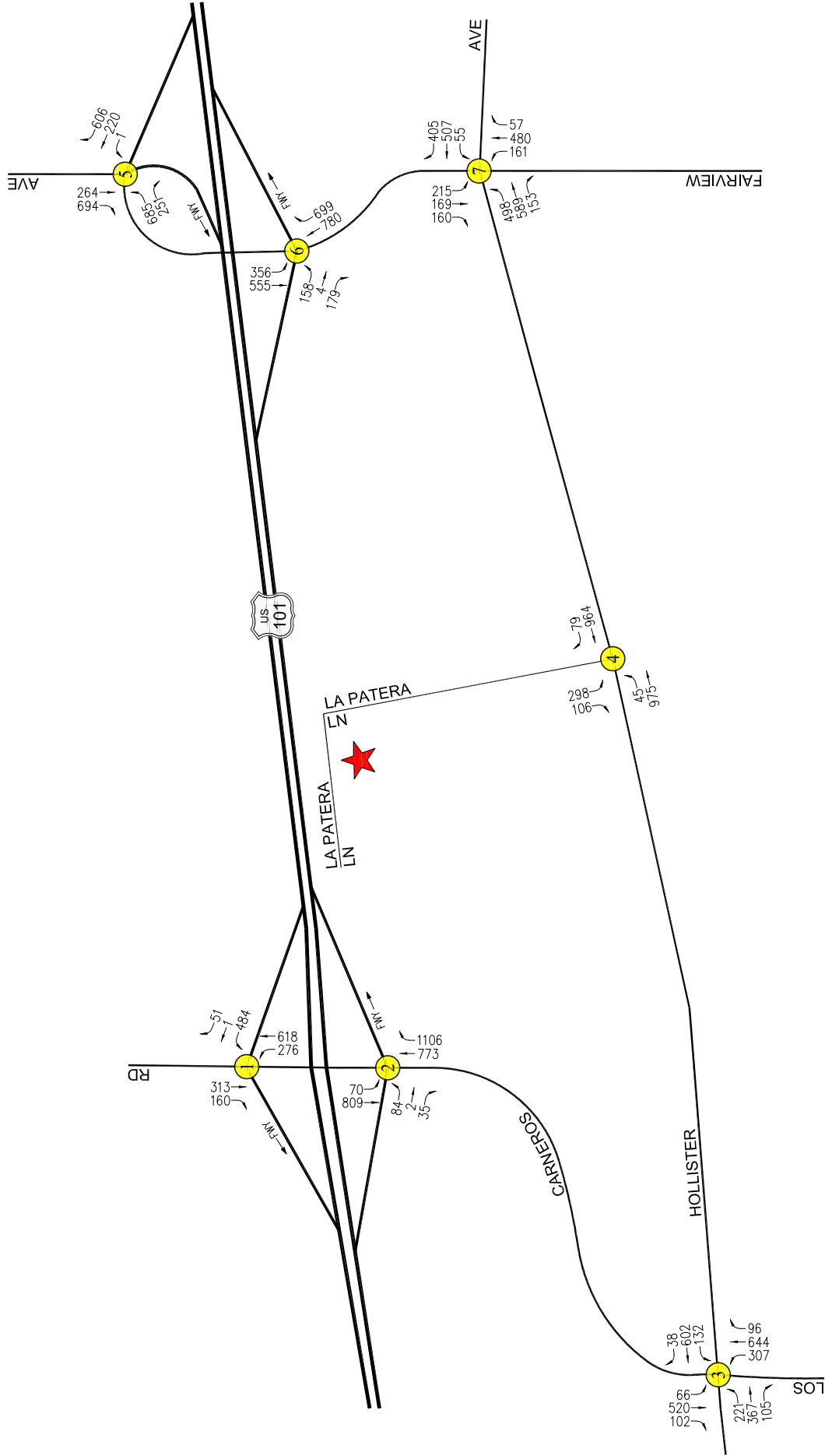


**FIGURE 10-3**  
**FUTURE CUMULATIVE BASELINE TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 GOLETA TRAIN DEPOT

**NOT TO SCALE**

PROJECT SITE  
 STUDY INTERSECTION

LINSCOTT, LAW & GREENSPAN, engineers

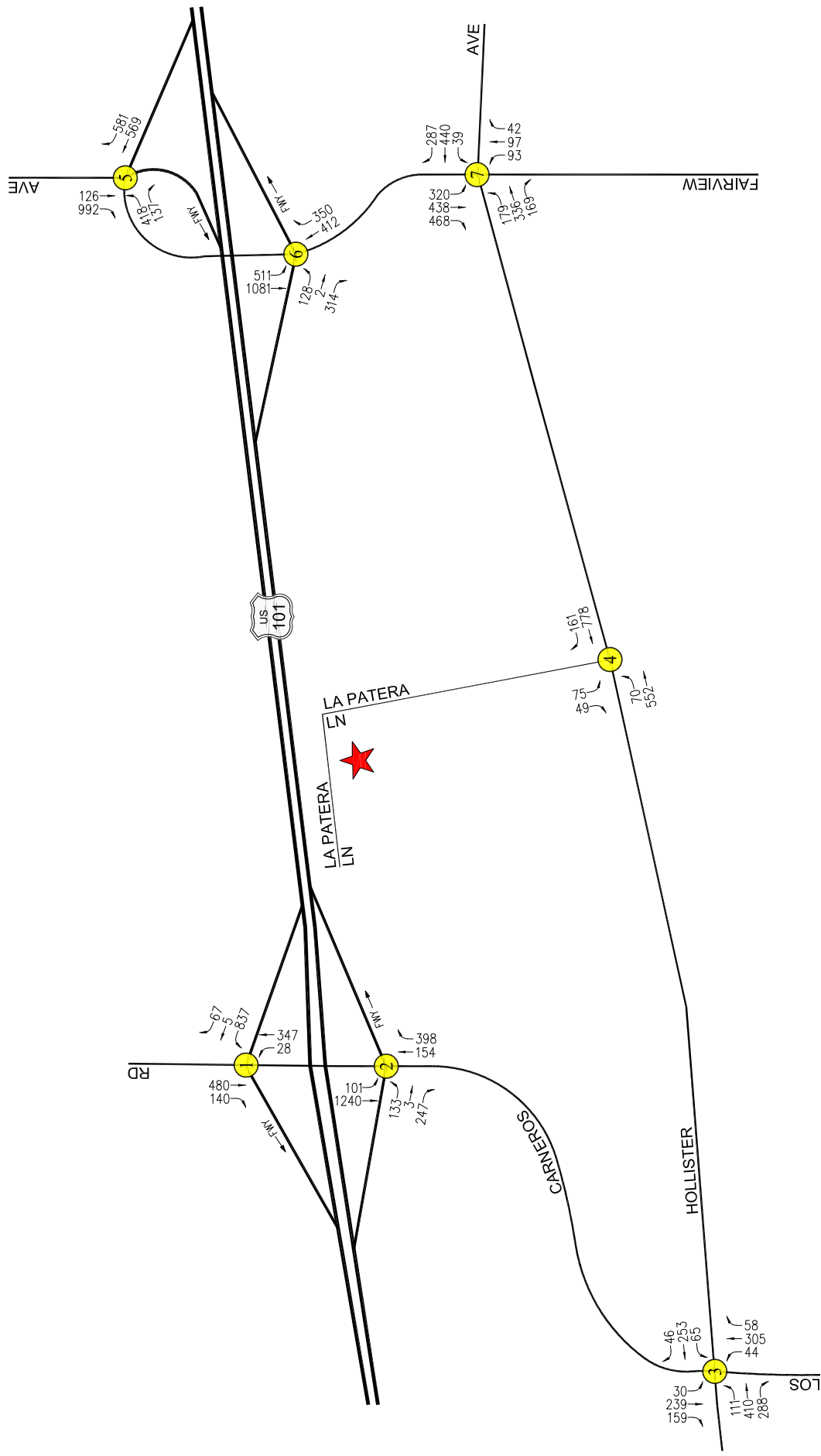


**FIGURE 10-4**  
**FUTURE CUMULATIVE BASELINE TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 GOLETA TRAIN DEPOT

**NOT TO SCALE**
  
 PROJECT SITE
   
 STUDY INTERSECTION
   
 LINSKOTT, LAW & GREENSPAN, engineers

### **10.2.2 Future Cumulative with Project Conditions**

The “Future Cumulative with Project” conditions were forecast based on the addition of traffic generated by the Project plus the addition of ambient traffic. As shown in column [4] of *Table 10-1*, Project-related traffic is not expected to exceed the operations criteria at any of the three study intersections in the “Future Cumulative with Project” scenario. Therefore, no measures are required or recommended at these intersections under the “Future Cumulative with Project” conditions. The future cumulative with project (existing, ambient growth, and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 10-5* and *10-6*, respectively.



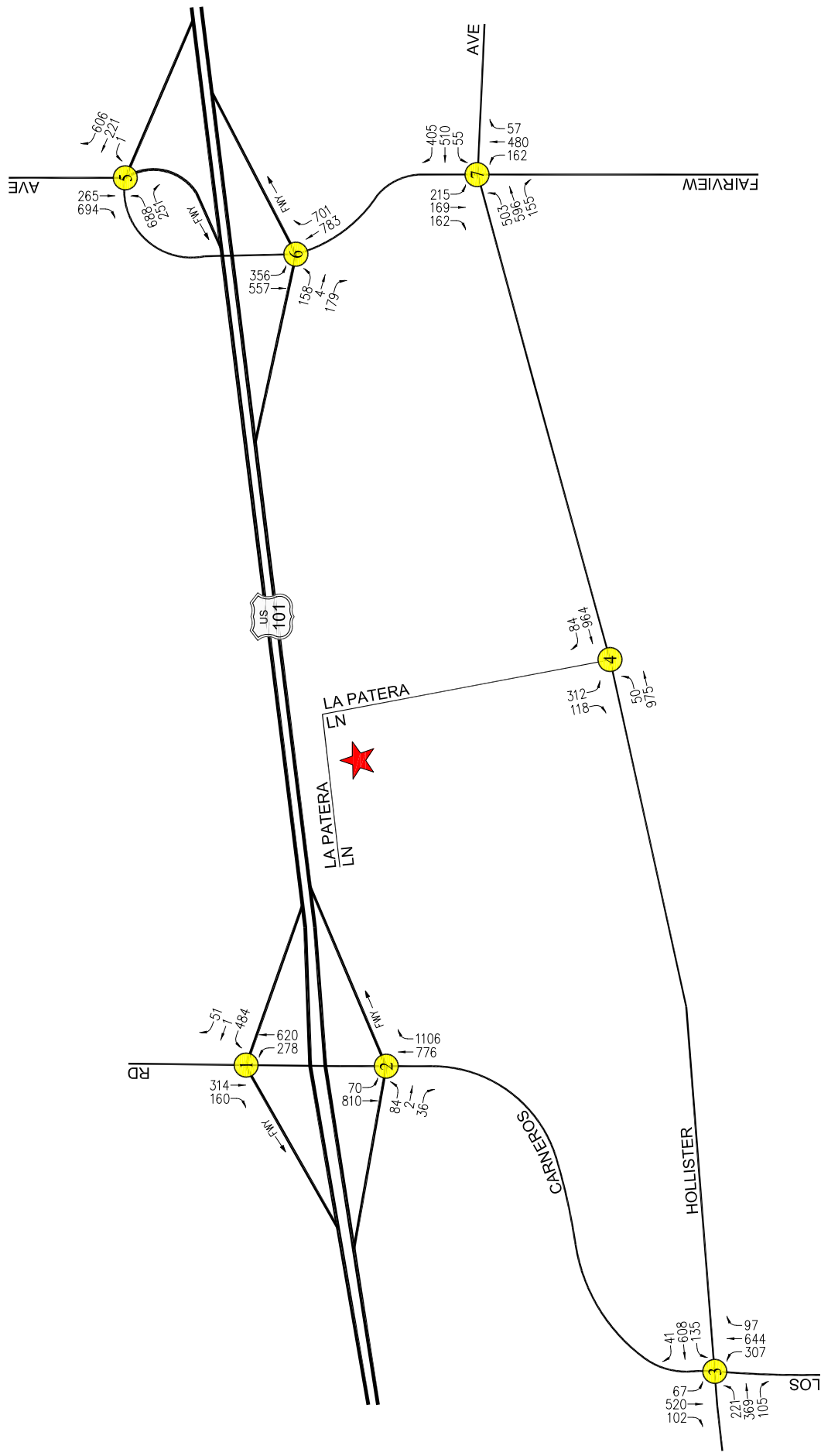
**FIGURE 10-5**  
**FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES**  
 WEEKDAY AM PEAK HOUR  
 GOLETA TRAIN DEPOT

**NOT TO SCALE**

PROJECT SITE  
 STUDY INTERSECTION

LINSCOTT, LAW & GREENSPAN, engineers





**FIGURE 10-6**  
**FUTURE CUMULATIVE WITH PROJECT TRAFFIC VOLUMES**  
 WEEKDAY PM PEAK HOUR  
 GOLETA TRAIN DEPOT

 **NOT TO SCALE**  
 PROJECT SITE  
 STUDY INTERSECTION

LINSCOTT, LAW & GREENSPAN, engineers

## 11.0 CALTRANS TRAFFIC ANALYSIS

The traffic analysis prepared for the four study intersections located within Caltrans jurisdiction using the HCM 6<sup>th</sup> Edition methodology and application of the Caltrans target LOS and traffic operations criteria is summarized in **Table 11-1**. The *Synchro 10* data worksheets for the analyzed intersections are contained in *Appendix C*.

### 11.1 Existing Conditions

#### 11.1.1 Existing Conditions

As indicated in column [1] of *Table 11-1*, the four study intersections located within Caltrans jurisdiction are presently operating at LOS C or better during the weekday AM and PM peak hours under existing conditions. The existing traffic volumes at the study intersections during the weekday AM and PM peak hours are displayed in *Figures 6-1* and *6-2*, respectively.

#### 11.1.2 Existing with Project Conditions

As shown in column [2] of *Table 11-1*, application of the City's threshold criteria to the "Existing with Project" scenario indicates that Project-related traffic is not expected to exceed the operations criteria at any of the four study intersections. Therefore, no measures are required or recommended at these intersections under the "Existing with Project" conditions. The existing with project traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 10-1* and *10-2*, respectively.

### 11.2 Future Conditions

#### 11.2.1 Future Cumulative Baseline Conditions

The future cumulative baseline conditions were forecast based on the addition of traffic generated by the growth in traffic due to the combined effects of continuing development, intensification of existing developments and other factors (i.e., ambient growth). The delay values at all of the study intersections are incrementally increased with the addition of ambient traffic.

As presented in column [3] of *Table 11-1*, the four study intersections located within Caltrans jurisdiction are expected to operate at LOS C or better during the weekday AM and PM peak hours with the addition of growth in ambient traffic under the future cumulative baseline conditions. The future cumulative baseline (existing and ambient growth) traffic volumes at the study intersections during the weekday AM and PM peak hours are presented in *Figures 10-3* and *10-4*, respectively.

**Table 11-1  
SUMMARY OF DELAY VALUES  
AND LEVELS OF SERVICE [a]  
AM AND PM PEAK HOURS  
CALTRANS INTERSECTIONS**

NO.	INTERSECTION	PEAK HOUR	[1]		[2]		[3]		[4]					
			YEAR 2020 EXISTING DELAY [b]	LOS [c]	YEAR 2020 EXISTING PLUS PROPOSED PROJECT DELAY	LOS	CHANGE DELAY [(2)-(1)]	CRITERIA EXCEEDED [d]	YEAR 2024 FUTURE DELAY [b]	LOS [c]	YEAR 2024 FUTURE PLUS PROPOSED PROJECT DELAY	LOS	CHANGE DELAY [(4)-(3)]	CRITERIA EXCEEDED
1	Los Carneros Road / US-101 NB Ramps	AM PM	18.0 20.3	B C	18.0 20.3	B C	0.0 0.0	NO NO	18.7 20.9	B C	18.8 20.9	B C	0.1 0.0	NO NO
2	Los Carneros Road / US-101 SB Ramps	AM PM	13.9 14.8	B B	13.9 14.8	B B	0.0 0.0	NO NO	14.7 23.0	B C	14.8 23.0	B C	0.1 0.0	NO NO
5	Fairview Avenue / US-101 NB Ramps	AM PM	10.0 13.4	A B	10.0 13.5	A B	0.0 0.1	NO NO	11.3 17.0	B B	11.3 17.1	B B	0.0 0.1	NO NO
6	Fairview Avenue / US-101 SB Ramps	AM PM	15.8 21.6	B C	15.8 21.7	B C	0.0 0.1	NO NO	17.0 31.2	B C	17.0 31.4	B C	0.0 0.2	NO NO

[a] Intersection analysis results per SYNCHRO 10.

[b] Control delay reported in seconds per vehicle.

[c] Signalized Intersection Levels of Service were based on the following criteria:

Control Delay (s/veh)	Type of Flow	LOS
<= 10	Stable Flow	A
> 10-20	Stable Flow	B
> 20-35	Stable Flow	C
> 35-55	Approaching Unstable Flow	D
> 55-80	Unstable Flow	E
> 80	Forced Flow	F

[d] Intersection operations evaluated based on the following criteria:

LOS	Project-Related Increase in Delay
E	5 seconds
F	5 seconds

### **11.2.2 Future Cumulative with Project Conditions**

The “Future Cumulative with Project” conditions were forecast based on the addition of traffic generated by the Project plus the addition of ambient traffic. As shown in column [4] of *Table 11-1*, application of Caltrans’ target LOS criteria and threshold criteria to the “Future Cumulative with Project” scenario indicates that Project-related traffic is not expected to exceed the operations criteria at any of the four study intersections. Therefore, no measures are required or recommended at these intersections under the “Future Cumulative with Project” conditions. The future cumulative with project (existing, ambient growth, and Project) traffic volumes at the study intersections during the weekday AM and PM peak hours are illustrated in *Figures 10-5* and *10-6*, respectively.

## 12.0 CONCLUSIONS

This traffic analysis has been prepared to evaluate the potential impacts due to the proposed train depot project located at 27 S. La Patera Lane in the City of Goleta. A VMT assessment has been prepared in accordance with the City of Goleta's Resolution No. 20-44. Based on the guidance provided in the Resolution, supplemented by the guidance provided in the Governor's Office technical advisory, VMT impacts of the Project are determined to be less than significant.

The City's Resolution also requires that a LOS analysis be performed at the local level per Policy TE-4 of the City's General Plan. Accordingly, seven intersections were identified and analyzed in order to determine changes in operations following construction and occupancy of the proposed Project. Application of the operations criteria from the City of Goleta and State of California indicate that none of the seven study intersections would exceed the operations criteria with the addition of the forecast Project traffic. Accordingly, no traffic measures are required or recommended for the study intersections.

**APPENDIX A**  
**HISTORICAL TRAFFIC COUNT DATA**

Marriott Residence Inn  
Existing (2007) Conditions  
AM Peak Hour

Turning Movement Report  
none

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#3 Storke Road/Hollister Avenue													
Base	32	498	158	415	490	372	573	395	62	103	131	66	3295
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	32	498	158	415	490	372	573	395	62	103	131	66	3295
#9 Los Carneros Road/US-101 NB Ramps													
Base	25	321	0	0	442	129	0	0	0	773	5	62	1757
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	25	321	0	0	442	129	0	0	0	773	5	62	1757
#10 Los Carneros Road/US-101 SB Ramps													
Base	0	141	368	93	1144	0	123	3	226	0	0	0	2098
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	141	368	93	1144	0	123	3	226	0	0	0	2098
#11 Los Carneros Road/Calle Koral													
Base	0	451	6	223	1142	0	0	0	0	25	0	110	1957
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	451	6	223	1142	0	0	0	0	25	0	110	1957
#15 Los Carneros Road/Hollister Avenue													
Base	41	282	51	24	221	147	103	373	266	59	232	42	1841
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	41	282	51	24	221	147	103	373	266	59	232	42	1841
#17 Los Carneros Way/Hollister Avenue													
Base	0	0	0	260	0	25	20	519	0	0	572	70	1466
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	260	0	25	20	519	0	0	572	70	1466
#18 Fairview Avenue/Calle Real													
Base	258	427	158	52	465	39	20	71	422	178	100	28	2218
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	258	427	158	52	465	39	20	71	422	178	100	28	2218
#19 Fairview Avenue/Hollister Avenue													
Base	75	110	30	428	509	662	196	308	176	58	365	260	3177
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	75	110	30	428	509	662	196	308	176	58	365	260	3177
#24 La Patera Ln/Hollister Ave													
Base	0	0	0	66	0	42	53	510	0	0	719	135	1525
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	66	0	42	53	510	0	0	719	135	1525

-----  
 Marriott Residence Inn  
 Existing (2007) Conditions  
 AM Peak Hour  
 -----

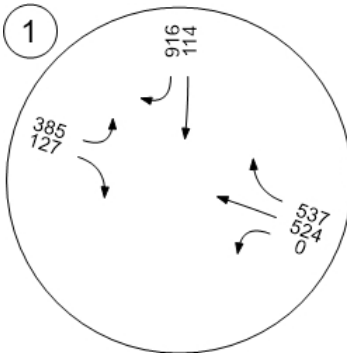
Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#29 Fairview Ave/US-101 NB Ramps													
Base	0	0	0	0	117	921	369	0	111	1	614	475	2608
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	117	921	369	0	111	1	614	475	2608
#51 Fairview Ave/US-101 SB Ramps													
Base	0	304	324	559	1091	0	151	2	308	0	0	0	2739
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	304	324	559	1091	0	151	2	308	0	0	0	2739
#360 Robin Hill/Hollister Ave													
Base	0	0	0	15	0	25	110	554	0	0	511	118	1333
Added	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	15	0	25	110	554	0	0	511	118	1333



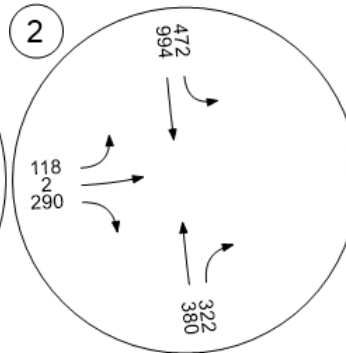
Traffic Volume - Base Volume



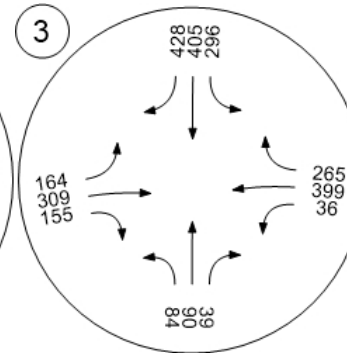
Fairview Ave & US 101 Ramp



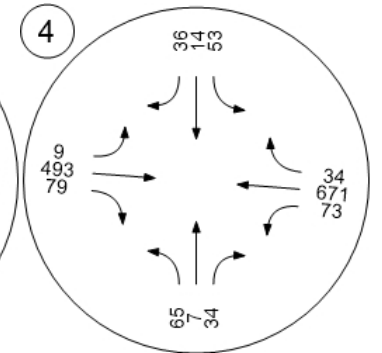
Fairview Ave & US 101 SB Ramp



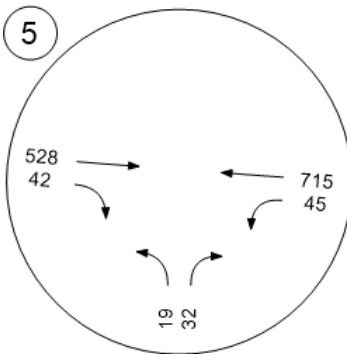
Hollister Ave & Fairview Ave



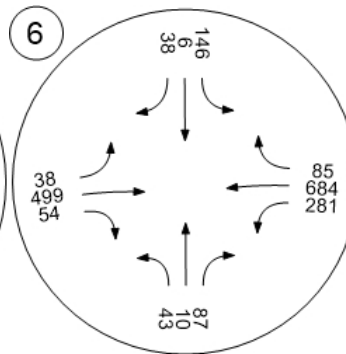
Hollister Ave & Pine Ave/Nectarine



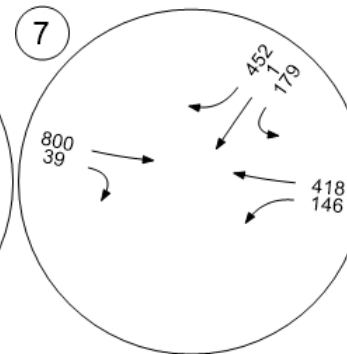
Hollister Ave & Rutherford St



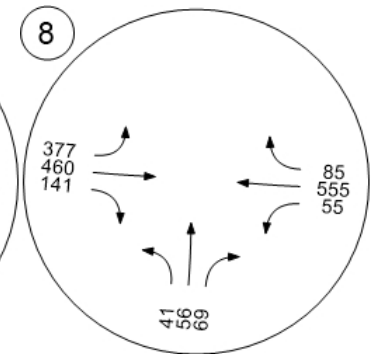
Hollister Ave & Kellogg Ave



Hollister Ave & SR 217 WB Ramps



Hollister Ave & SR 217 EB Off Ramp



Marriott Residence Inn  
Existing With Project  
PM Peak Hour

Turning Movement Report  
Proj PM

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#3 Storke Road/Hollister Avenue													
Base	76	625	144	139	531	759	659	340	58	226	484	464	4505
Added	0	0	0	1	0	0	0	1	0	0	2	1	5
Total	76	625	144	140	531	759	659	341	58	226	486	465	4510
#9 Los Carneros Road/US-101 NB Ramps													
Base	255	571	0	0	289	148	0	0	0	447	1	47	1758
Added	4	0	0	0	0	0	0	0	0	0	0	0	4
Total	259	571	0	0	289	148	0	0	0	447	1	47	1762
#10 Los Carneros Road/US-101 SB Ramps													
Base	0	714	1022	65	747	0	78	2	32	0	0	0	2660
Added	0	4	0	0	0	0	0	0	3	0	0	0	7
Total	0	718	1022	65	747	0	78	2	35	0	0	0	2667
#11 Los Carneros Road/Calle Koral													
Base	0	1497	28	94	629	0	0	0	0	10	0	285	2543
Added	0	0	0	3	0	0	0	0	0	0	0	4	7
Total	0	1497	28	97	629	0	0	0	0	10	0	289	2550
#15 Los Carneros Road/Hollister Avenue													
Base	284	595	89	61	480	94	204	339	97	122	556	35	2956
Added	0	0	3	1	0	0	0	4	0	4	5	2	19
Total	284	595	92	62	480	94	204	343	97	126	561	37	2975
#17 Los Carneros Way/Hollister Avenue													
Base	0	0	0	72	0	21	61	758	0	0	921	310	2143
Added	0	0	0	3	0	0	0	8	0	0	11	4	26
Total	0	0	0	75	0	21	61	766	0	0	932	314	2169
#18 Fairview Avenue/Calle Real													
Base	442	420	504	112	366	38	34	254	263	318	238	55	3044
Added	1	1	3	0	1	0	0	0	1	2	0	0	9
Total	443	421	507	112	367	38	34	254	264	320	238	55	3053
#19 Fairview Avenue/Hollister Avenue													
Base	141	431	84	250	189	244	641	499	135	57	461	401	3533
Added	3	0	0	0	0	10	14	4	4	0	3	0	38
Total	144	431	84	250	189	254	655	503	139	57	464	401	3571
#24 La Patera Ln/Hollister Ave													
Base	0	0	0	275	0	98	42	901	0	0	891	73	2280
Added	0	0	0	0	0	4	0	22	0	0	16	0	42
Total	0	0	0	275	0	102	42	923	0	0	907	73	2322

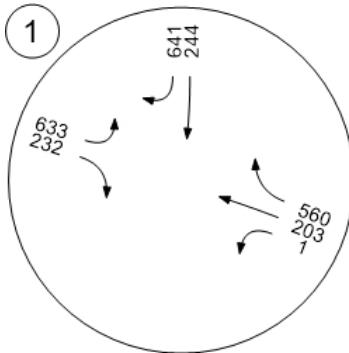
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 Marriott Residence Inn  
 Existing With Project  
 PM Peak Hour  
 -----

Volume Type	Northbound			Southbound			Eastbound			Westbound			Total Volume
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
#29 Fairview Ave/US-101 NB Ramps													
Base	0	0	0	0	274	671	852	0	253	1	256	657	2964
Added	0	0	0	0	0	4	5	0	0	0	7	0	16
Total	0	0	0	0	274	675	857	0	253	1	263	657	2980
#51 Fairview Ave/US-101 SB Ramps													
Base	0	699	707	383	596	0	196	2	143	0	0	0	2726
Added	0	5	10	0	10	0	0	0	0	0	0	0	25
Total	0	704	717	383	606	0	196	2	143	0	0	0	2751
#360 Robin Hill/Hollister Ave													
Base	0	0	0	89	0	145	29	657	0	0	774	20	1714
Added	0	0	0	22	0	0	0	11	0	0	15	16	64
Total	0	0	0	111	0	145	29	668	0	0	789	36	1778

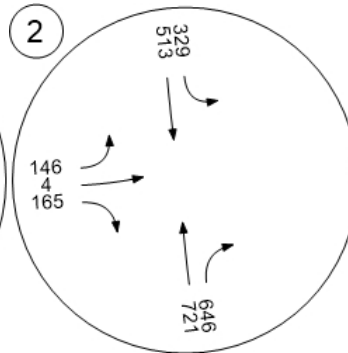
Traffic Volume - Base Volume



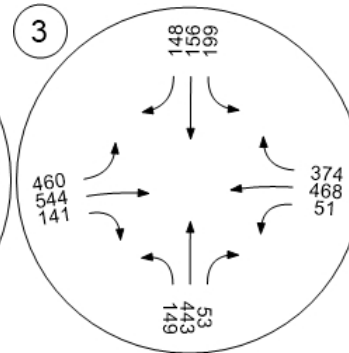
Fairview Ave & US 101 Ramp



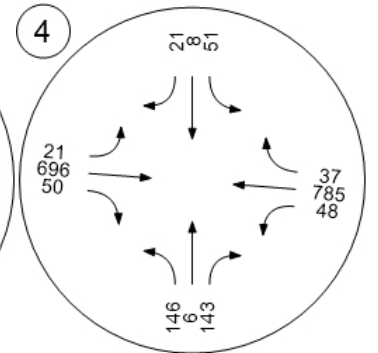
Fairview Ave & US 101 SB Ramp



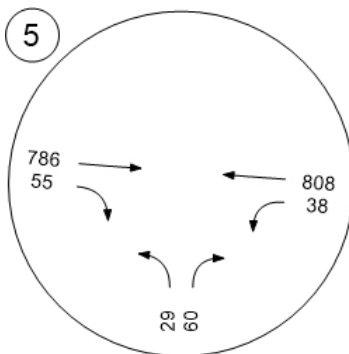
Hollister Ave & Fairview Ave



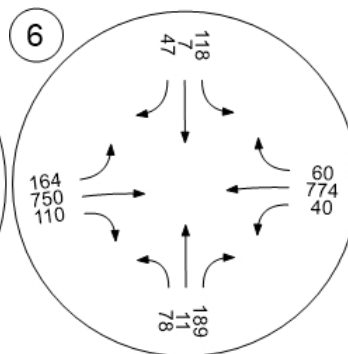
Hollister Ave & Pine Ave/Nectarine



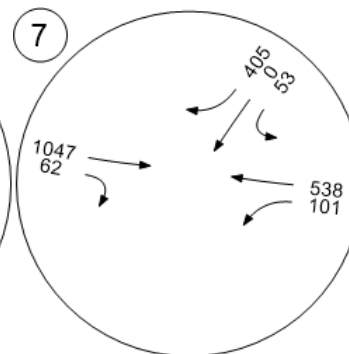
Hollister Ave & Rutherford St



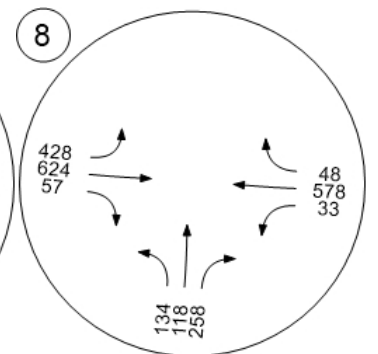
Hollister Ave & Kellogg Ave



Hollister Ave & SR 217 WB Ramps



Hollister Ave & SR 217 EB Off Ramp





## **APPENDIX B**

### **ICU AND LEVELS OF SERVICE EXPLANATION ICU DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS CITY OF GOLETA**

## INTERSECTION CAPACITY UTILIZATION (ICU) DESCRIPTION

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

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

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

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

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

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

### SERVICE LEVEL A

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

### SERVICE LEVEL B

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

### SERVICE LEVEL C

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

### SERVICE LEVEL D

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

### SERVICE LEVEL E

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

### SERVICE LEVEL F

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

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**INTERSECTION CAPACITY UTILIZATION**

N-S St: Los Carneros Road  
 E-W St: Hollister Avenue  
 Project: 5-20-0492-1 Goleta Train Depot  
 File: ICU-3

Los Carneros Road @ Hollister Avenue  
 Peak hr: AM  
 Annual Growth: 2%

Date: 08/06/2020  
 Date of Count: 2020  
 Projection Year: 2024

Movement	2020 EXIST. TRAFFIC			2020 W/PROJECT SITE TRAFFIC			2024 WITHOUT PROJECT			2024 W/PROJECT					
	1	2	V/C	Added Volume	Total Volume	Capacity	Ratio	Added Volume	Total Volume	Capacity	Ratio	Added Volume	Total Volume	Capacity	Ratio
Nb Left	41	3200	0.013	0	41	3200	0.013	0	44	3200	0.014	0	44	3200	0.014
Nb Thru	282	3200	0.088 *	0	282	3200	0.088 *	0	305	3200	0.095 *	0	305	3200	0.095 *
Nb Right	51	1600	0.032	3	54	1600	0.034	0	55	1600	0.034	3	58	1600	0.036
Sb Left	24	1600	0.015 *	4	28	1600	0.018 *	0	26	1600	0.016 *	4	30	1600	0.019 *
Sb Thru	221	3200	0.069	0	221	3200	0.069	0	239	3200	0.075	0	239	3200	0.075
Sb Right [3]	147	1600	0.060	0	147	1600	0.060	0	159	1600	0.064	0	159	1600	0.064
Eb Left	103	3200	0.032	0	103	3200	0.032	0	111	3200	0.035	0	111	3200	0.035
Eb Thru	373	3200	0.117	6	379	3200	0.118	0	404	3200	0.126	6	410	3200	0.128
Eb Right	266	1600	0.166 *	0	266	1600	0.166 *	0	288	1600	0.180 *	0	288	1600	0.180 *
Wb Left	59	1600	0.037 *	1	60	1600	0.038 *	0	64	1600	0.040 *	1	65	1600	0.040 *
Wb Thru	232	3200	0.086	2	234	3200	0.087	0	251	3200	0.092	2	253	3200	0.093
Wb Right	42	0	-	1	43	0	-	0	45	0	-	1	46	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.406				0.409				0.431				0.434
LOS			A				A				A				A

\* Key conflicting movement as a part of ICU  
 1 Counts conducted by City of Goleta  
 2 Capacity expressed in veh/hour of green  
 3 The southbound right-turn lane has an overlapping phase with eastbound left-turn phase.

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Los Carneros Road @ Hollister Avenue  
 Peak hr: PM  
 Annual Growth: 2%

Date: 08/06/2020  
 Date of Count: 2020  
 Projection Year: 2024

N-S St: Los Carneros Road  
 E-W St: Hollister Avenue  
 Project: 5-20-0492-1 Goleta Train Depot  
 File: ICU-3

**INTERSECTION CAPACITY UTILIZATION**

Movement	2020 EXIST. TRAFFIC			2020 W/PROJECT SITE TRAFFIC			2024 WITHOUT PROJECT			2024 W/PROJECT					
	1	2	V/C	Added Volume	Total Volume	Capacity	Ratio	Added Volume	Total Volume	Capacity	Ratio	Added Volume	Total Volume	Capacity	Ratio
Nb Left	284	3200	0.089 *	0	284	3200	0.089 *	0	307	3200	0.096 *	0	307	3200	0.096 *
Nb Thru	595	3200	0.186	0	595	3200	0.186	0	644	3200	0.201	0	644	3200	0.201
Nb Right	89	1600	0.056	1	90	1600	0.056	0	96	1600	0.060	1	97	1600	0.061
Sb Left	61	1600	0.038	1	62	1600	0.039	0	66	1600	0.041	1	67	1600	0.042
Sb Thru	480	3200	0.150 *	0	480	3200	0.150 *	0	520	3200	0.163 *	0	520	3200	0.163 *
Sb Right [3]	94	1600	0.000	0	94	1600	0.000	0	102	1600	0.000	0	102	1600	0.000
Eb Left	204	3200	0.064 *	0	204	3200	0.064 *	0	221	3200	0.069 *	0	221	3200	0.069 *
Eb Thru	339	3200	0.106	2	341	3200	0.107	0	367	3200	0.115	2	369	3200	0.115
Eb Right	97	1600	0.061	0	97	1600	0.061	0	105	1600	0.065	0	105	1600	0.065
Wb Left	122	1600	0.076	3	125	1600	0.078	0	132	1600	0.082	3	135	1600	0.084
Wb Thru	556	3200	0.185 *	6	562	3200	0.188 *	0	602	3200	0.200 *	6	608	3200	0.203 *
Wb Right	35	0	-	3	38	0	-	0	38	0	-	3	41	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.587				0.590				0.627				0.630
LOS			A				A				B				B

\* Key conflicting movement as a part of ICU  
 1 Counts conducted by City of Goleta  
 2 Capacity expressed in veh/hour of green  
 3 The southbound right-turn lane has an overlapping phase with eastbound left-turn phase.



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N-S St: La Patera Lane  
 E-W St: Hollister Avenue  
 Project: 5-19-0492-1 Goleta Train Depot  
 File: ICU-4

La Patera Lane @ Hollister Avenue  
 Peak hr: AM  
 Annual Growth: 2%

Date: 08/06/2020  
 Date of Count: 2020  
 Projection Year: 2024

**INTERSECTION CAPACITY UTILIZATION**

Movement	2020 EXIST. TRAFFIC			2020 W/PROJECT SITE TRAFFIC			2024 WITHOUT PROJECT			2024 W/PROJECT					
	1	2	V/C	Added Volume	Total Volume	Capacity	Ratio	Added Volume	Total Volume	Capacity	Ratio	Added Volume	Total Volume	Capacity	Ratio
Nb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	66	1600	0.041	4	70	1600	0.044	0	71	1600	0.045	4	75	1600	0.047
Sb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Right	42	1600	0.026	4	46	1600	0.029	0	45	1600	0.028	4	49	1600	0.031
Eb Left	53	1600	0.033 *	13	66	1600	0.041 *	0	57	1600	0.036 *	13	70	1600	0.044 *
Eb Thru	510	3200	0.159	0	510	3200	0.159	0	552	3200	0.173	0	552	3200	0.173
Eb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Thru	719	3200	0.267 *	0	719	3200	0.272 *	0	778	3200	0.289 *	0	778	3200	0.293 *
Wb Right	135	0	-	15	150	0	-	0	146	0	-	15	161	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU			0.441				0.457				0.469				0.484
LOS			A				A				A				A

\* Key conflicting movement as a part of ICU  
 1 Counts conducted by City of Goleta  
 2 Capacity expressed in veh/hour of green

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**INTERSECTION CAPACITY UTILIZATION**

N-S St: La Patera Lane  
 E-W St: Hollister Avenue  
 Project: 5-19-0492-1 Goleta Train Depot  
 File: ICU-4

La Patera Lane @ Hollister Avenue  
 Peak hr: PM  
 Annual Growth: 2%

Date: 08/06/2020  
 Date of Count: 2020  
 Projection Year: 2024

Movement	2020 EXIST. TRAFFIC			2020 W/PROJECT SITE TRAFFIC			2024 WITHOUT PROJECT			2024 W/PROJECT					
	1	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C	Added	Total	2	V/C
	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio	Volume	Volume	Capacity	Ratio
Nb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Nb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Sb Left	275	1600	0.172	14	289	1600	0.181	0	298	1600	0.186	14	312	1600	0.195
Sb Thru	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Sb Right	98	1600	0.061	12	110	1600	0.069	0	106	1600	0.066	12	118	1600	0.074
Eb Left	42	1600	0.026 *	5	47	1600	0.029 *	0	45	1600	0.028 *	5	50	1600	0.031 *
Eb Thru	901	3200	0.282	0	901	3200	0.282	0	975	3200	0.305	0	975	3200	0.305
Eb Right	0	0	-	0	0	0	-	0	0	0	-	0	0	0	-
Wb Left	0	0	0.000	0	0	0	0.000	0	0	0	0.000	0	0	0	0.000
Wb Thru	891	3200	0.301 *	0	891	3200	0.303 *	0	964	3200	0.326 *	0	964	3200	0.327 *
Wb Right	73	0	-	5	78	0	-	0	79	0	-	5	84	0	-
Yellow Allowance:			0.100 *				0.100 *				0.100 *				0.100 *
ICU															
LOS			0.599				0.613				0.640				0.654
			A				B				B				B

\* Key conflicting movement as a part of ICU  
 1 Counts conducted by City of Goleta  
 2 Capacity expressed in veh/hour of green

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**INTERSECTION CAPACITY UTILIZATION**

N-S St: Fairview Avenue  
 E-W St: Hollister Avenue  
 Project: 5-20-0492-1 Goleta Train Depot  
 File: ICU-7

Fairview Avenue @ Hollister Avenue  
 Peak hr: AM  
 Annual Growth: 2%

Date: 08/06/2020  
 Date of Count: 2020  
 Projection Year: 2024

Movement	2020 EXIST. TRAFFIC			2020 W/PROJECT SITE TRAFFIC			2024 WITHOUT PROJECT			2024 W/PROJECT					
	1	2	V/C Ratio	Added Volume	Total Volume	Capacity	2	V/C Ratio	Added Volume	Total Volume	Capacity	2	V/C Ratio		
Nb Left	84	1600	0.053 *	2	86	1600	0.054 *	0	91	1600	0.057 *	2	93	1600	0.058 *
Nb Thru	90	3200	0.040	0	90	3200	0.040	0	97	3200	0.044	0	97	3200	0.044
Nb Right	39	0	-	0	39	0	-	0	42	0	-	0	42	0	-
Sb Left	296	3200	0.093	0	296	3200	0.093	0	320	3200	0.100	0	320	3200	0.100
Sb Thru	405	3200	0.127	0	405	3200	0.127	0	438	3200	0.137	0	438	3200	0.137
Sb Right [3]	428	1600	0.216 *	5	433	1600	0.219 *	0	463	1600	0.234 *	5	468	1600	0.237 *
Eb Left	164	3200	0.051 *	1	165	3200	0.052 *	0	178	3200	0.056 *	1	179	3200	0.056 *
Eb Thru	309	3200	0.097	2	311	3200	0.097	0	334	3200	0.104	2	336	3200	0.105
Eb Right	155	1600	0.097	1	156	1600	0.098	0	168	1600	0.105	1	169	1600	0.106
Wb Left	36	1600	0.023	0	36	1600	0.023	0	39	1600	0.024	0	39	1600	0.024
Wb Thru	399	3200	0.125 *	8	407	3200	0.127 *	0	432	3200	0.135 *	8	440	3200	0.138 *
Wb Right [4]	265	1600	0.073	0	265	1600	0.073	0	287	1600	0.079	0	287	1600	0.079
Yellow Allowance:	0.100 *			0.100 *			0.100 *			0.100 *			0.100 *		
ICU	0.545			0.552			0.581			0.588			0.588		
LOS	A			A			A			A			A		

\* Key conflicting movement as a part of ICU  
 1 Counts conducted by City of Goleta  
 2 Capacity expressed in veh/hour of green  
 3 The southbound right-turn lane has an overlapping phase with eastbound left-turn phase.  
 4 The westbound right-turn lane has an overlapping phase with southbound left-turn phase.

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**INTERSECTION CAPACITY UTILIZATION**

N-S St: Fairview Avenue  
 E-W St: Hollister Avenue  
 Project: 5-20-0492-1 Goleta Train Depot  
 File: ICU-7

Fairview Avenue @ Hollister Avenue  
 Peak hr: PM  
 Annual Growth: 2%

Date: 08/06/2020  
 Date of Count: 2020  
 Projection Year: 2024

Movement	2020 EXIST. TRAFFIC			2020 W/PROJECT SITE TRAFFIC			2024 WITHOUT PROJECT			2024 W/PROJECT					
	1	2	V/C Ratio	Added Volume	Total Volume	Capacity	2	V/C Ratio	Added Volume	Total Volume	Capacity	2	V/C Ratio		
Nb Left	149	1600	0.093	1	150	1600	0.094	0	161	1600	0.101	1	162	1600	0.101
Nb Thru	443	3200	0.155 *	0	443	3200	0.155 *	0	480	3200	0.168 *	0	480	3200	0.168 *
Nb Right	53	0	-	0	53	0	-	0	57	0	-	0	57	0	-
Sb Left	199	3200	0.062 *	0	199	3200	0.062 *	0	215	3200	0.067 *	0	215	3200	0.067 *
Sb Thru	156	3200	0.049	0	156	3200	0.049	0	169	3200	0.053	0	169	3200	0.053
Sb Right [3]	148	1600	0.000	2	150	1600	0.000	0	160	1600	0.000	2	162	1600	0.000
Eb Left	460	3200	0.144 *	5	465	3200	0.145 *	0	498	3200	0.156 *	5	503	3200	0.157 *
Eb Thru	544	3200	0.170	7	551	3200	0.172	0	589	3200	0.184	7	596	3200	0.186
Eb Right	141	1600	0.088	2	143	1600	0.089	0	153	1600	0.096	2	155	1600	0.097
Wb Left	51	1600	0.032	0	51	1600	0.032	0	55	1600	0.034	0	55	1600	0.034
Wb Thru	468	3200	0.146	3	471	3200	0.147	0	507	3200	0.158	3	510	3200	0.159
Wb Right [4]	374	1600	0.172 *	0	374	1600	0.172 *	0	405	1600	0.186 *	0	405	1600	0.186 *
Yellow Allowance:	0.100 *			0.100 *			0.100 *			0.100 *			0.100 *		
ICU	0.633			0.634			0.677			0.678			0.678		
LOS	B			B			B			B			B		

- \* Key conflicting movement as a part of ICU
- 1 Counts conducted by City of Goleta
- 2 Capacity expressed in veh/hour of green
- 3 The southbound right-turn lane has an overlapping phase with eastbound left-turn phase.
- 4 The westbound right-turn lane has an overlapping phase with southbound left-turn phase.

## **APPENDIX C**

### **HCM AND LEVELS OF SERVICE EXPLANATION HCM DATA WORKSHEETS – WEEKDAY AM AND PM PEAK HOURS STATE OF CALIFORNIA (CALTRANS)**

## LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

In the *Highway Capacity Manual (HCM)*, published by the Transportation Research Board, 2000, level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of incidents, and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Level of Service criteria for traffic signals are stated in terms of the average control delay per vehicle. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the  $v/c$  ratio for the lane group in question.

Level of Service Criteria for Signalized Intersections	
Level of Service	Control Delay (Sec/Veh)
A	$\leq 10$
B	$> 10$ and $\leq 20$
C	$> 20$ and $\leq 35$
D	$> 35$ and $\leq 55$
E	$> 55$ and $\leq 80$
F	$> 80$

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

**LOS A** describes operations with very low control delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay values.

**LOS B** describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

**LOS C** describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.



















**LOS D** describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high  $v/c$  ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

**LOS E** describes operations with control delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high  $v/c$  ratios. Individual cycle failures are frequent occurrences.

**LOS F** describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the lane groups. It may also occur at high  $v/c$  ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.



















# HCM 6th Signalized Intersection Summary

## 1: Los Carneros Rd & US 101 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	773	5	62	25	321	0	0	442	129
Future Volume (veh/h)	0	0	0	773	5	62	25	321	0	0	442	129
Initial Q (Qb), veh				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
Parking Bus, Adj				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		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				906	0	0	27	349	0	0	480	140
Peak Hour Factor				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	0	0	2	2
Cap, veh/h				1114	585	0	51	2059	0	0	1350	391
Arrive On Green				0.31	0.00	0.00	0.03	0.58	0.00	0.00	0.50	0.50
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	2811	788
Grp Volume(v), veh/h				906	0	0	27	349	0	0	313	307
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1777	1729
Q Serve(g_s), s				17.4	0.0	0.0	1.1	3.4	0.0	0.0	8.0	8.1
Cycle Q Clear(g_c), s				17.4	0.0	0.0	1.1	3.4	0.0	0.0	8.0	8.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.46
Lane Grp Cap(c), veh/h				1114	585	0	51	2059	0	0	883	859
V/C Ratio(X)				0.81	0.00	0.00	0.53	0.17	0.00	0.00	0.35	0.36
Avail Cap(c_a), veh/h				2352	1235	0	168	2059	0	0	883	859
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.5	0.0	0.0	35.5	7.3	0.0	0.0	11.4	11.4
Incr Delay (d2), s/veh				1.5	0.0	0.0	8.1	0.2	0.0	0.0	1.1	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				11.4	0.0	0.0	1.0	2.0	0.0	0.0	5.4	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.0	0.0	0.0	43.7	7.5	0.0	0.0	12.5	12.6
LnGrp LOS				C	A	A	D	A	A	A	B	B
Approach Vol, veh/h					906			376			620	
Approach Delay, s/veh					25.0			10.1			12.6	
Approach LOS					C			B			B	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	6.1	40.9		27.2			47.0					
Change Period (Y+Rc), s	4.0	4.0		4.0			4.0					
Max Green Setting (Gmax), s	7.0	32.0		49.0			43.0					
Max Q Clear Time (g_c+I1), s	3.1	10.1		19.4			5.4					
Green Ext Time (p_c), s	0.0	3.8		3.8			2.4					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.0								
HCM 6th LOS				B								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

# HCM 6th Signalized Intersection Summary




















## 1: Los Carneros Rd & US 101 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	447	1	47	255	571	0	0	289	148
Future Volume (veh/h)	0	0	0	447	1	47	255	571	0	0	289	148
Initial Q (Qb), veh				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
Parking Bus, Adj				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		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				534	0	0	277	621	0	0	314	161
Peak Hour Factor				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	0	0	2	2
Cap, veh/h				674	354	0	325	2543	0	0	1113	558
Arrive On Green				0.19	0.00	0.00	0.18	0.72	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	2385	1149
Grp Volume(v), veh/h				534	0	0	277	621	0	0	242	233
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1777	1664
Q Serve(g_s), s				12.0	0.0	0.0	12.6	5.1	0.0	0.0	6.8	7.0
Cycle Q Clear(g_c), s				12.0	0.0	0.0	12.6	5.1	0.0	0.0	6.8	7.0
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.69
Lane Grp Cap(c), veh/h				674	354	0	325	2543	0	0	863	808
V/C Ratio(X)				0.79	0.00	0.00	0.85	0.24	0.00	0.00	0.28	0.29
Avail Cap(c_a), veh/h				1359	714	0	659	2543	0	0	863	808
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.4	0.0	0.0	33.2	4.1	0.0	0.0	12.8	12.9
Incr Delay (d2), s/veh				2.2	0.0	0.0	6.3	0.2	0.0	0.0	0.8	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				9.0	0.0	0.0	9.5	2.2	0.0	0.0	4.8	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.6	0.0	0.0	39.5	4.3	0.0	0.0	13.7	13.8
LnGrp LOS				C	A	A	D	A	A	A	B	B
Approach Vol, veh/h					534			898			475	
Approach Delay, s/veh					34.6			15.2			13.7	
Approach LOS					C			B			B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	19.3	44.7		19.9		64.0						
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0						
Max Green Setting (Gmax), s	31.0	25.0		32.0		60.0						
Max Q Clear Time (g_c+I1), s	14.6	9.0		14.0		7.1						
Green Ext Time (p_c), s	0.7	2.5		1.9		4.3						
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				20.3								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												






















## HCM 6th Signalized Intersection Summary

### 2: US 101 SB Ramps & Los Carneros Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	3	226	0	0	0	0	141	368	93	1144	0
Future Volume (veh/h)	123	3	226	0	0	0	0	141	368	93	1144	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	134	3	246				0	153	400	101	1243	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	329	7	299				0	2128	949	131	2553	0
Arrive On Green	0.19	0.19	0.19				0.00	0.60	0.60	0.07	0.72	0.00
Sat Flow, veh/h	1744	39	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	137	0	246				0	153	400	101	1243	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	5.8	0.0	12.9				0.0	1.6	11.7	4.8	13.1	0.0
Cycle Q Clear(g_c), s	5.8	0.0	12.9				0.0	1.6	11.7	4.8	13.1	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	337	0	299				0	2128	949	131	2553	0
V/C Ratio(X)	0.41	0.00	0.82				0.00	0.07	0.42	0.77	0.49	0.00
Avail Cap(c_a), veh/h	620	0	551				0	2128	949	330	2553	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.8	0.0	33.6				0.0	7.3	9.3	39.3	5.3	0.0
Incr Delay (d2), s/veh	0.8	0.0	5.6				0.0	0.1	1.4	9.3	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
%ile BackOfQ(95%),veh/ln	4.6	0.0	9.1				0.0	0.9	6.5	4.3	6.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	39.2				0.0	7.3	10.7	48.6	5.9	0.0
LnGrp LOS	C	A	D				A	A	B	D	A	A
Approach Vol, veh/h		383						553			1344	
Approach Delay, s/veh		36.5						9.7			9.1	
Approach LOS		D						A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			10.3	55.7		20.3				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		62.0			16.0	42.0		30.0				
Max Q Clear Time (g_c+I1), s		15.1			6.8	13.7		14.9				
Green Ext Time (p_c), s		12.3			0.1	2.3		1.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			13.9									
HCM 6th LOS			B									



















## HCM 6th Signalized Intersection Summary

### 2: US 101 SB Ramps & Los Carneros Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	2	32	0	0	0	0	714	1022	65	747	0
Future Volume (veh/h)	78	2	32	0	0	0	0	714	1022	65	747	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	85	2	35				0	776	1111	71	812	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	124	3	112				0	2633	1174	91	2977	0
Arrive On Green	0.07	0.07	0.07				0.00	0.74	0.74	0.05	0.84	0.00
Sat Flow, veh/h	1742	41	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	87	0	35				0	776	1111	71	812	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	4.2	0.0	1.8				0.0	6.3	53.2	3.5	4.2	0.0
Cycle Q Clear(g_c), s	4.2	0.0	1.8				0.0	6.3	53.2	3.5	4.2	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	126	0	112				0	2633	1174	91	2977	0
V/C Ratio(X)	0.69	0.00	0.31				0.00	0.29	0.95	0.78	0.27	0.00
Avail Cap(c_a), veh/h	379	0	337				0	2633	1174	142	2977	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.8	0.0	38.7				0.0	3.8	9.8	41.1	1.5	0.0
Incr Delay (d2), s/veh	6.5	0.0	1.6				0.0	0.3	16.2	13.1	0.2	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
%ile BackOfQ(95%),veh/ln	3.7	0.0	1.4				0.0	2.6	22.0	3.3	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	0.0	40.2				0.0	4.1	26.0	54.2	1.7	0.0
LnGrp LOS	D	A	D				A	A	C	D	A	A
Approach Vol, veh/h		122						1887			883	
Approach Delay, s/veh		44.5						17.0			5.9	
Approach LOS		D						B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.4			8.5	68.9		10.2				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		73.4			7.0	62.4		18.6				
Max Q Clear Time (g_c+I1), s		6.2			5.5	55.2		6.2				
Green Ext Time (p_c), s		6.7			0.0	5.2		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			14.8									
HCM 6th LOS			B									





















# HCM 6th Signalized Intersection Summary

## 5: US 101 NB Ramps & Fairview Ave




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	385	0	127	0	524	537	0	0	0	0	114	916
Future Volume (veh/h)	385	0	127	0	524	537	0	0	0	0	114	916
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	397	0	0	0	540	554				0	118	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	694	0		0	939	796				0	0	
Arrive On Green	0.20	0.00	0.00	0.00	0.50	0.50				0.00	0.00	0.00
Sat Flow, veh/h	3456	397		0	1870	1585					0	
Grp Volume(v), veh/h	397	11.7		0	540	554					0.0	
Grp Sat Flow(s),veh/h/ln	1728	B		0	1870	1585						
Q Serve(g_s), s	3.1			0.0	6.1	8.1						
Cycle Q Clear(g_c), s	3.1			0.0	6.1	8.1						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	694			0	939	796						
V/C Ratio(X)	0.57			0.00	0.58	0.70						
Avail Cap(c_a), veh/h	2066			0	939	796						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	10.9			0.0	5.3	5.8						
Incr Delay (d2), s/veh	0.7			0.0	2.6	5.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	1.6			0.0	2.7	3.6						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7			0.0	7.8	10.8						
LnGrp LOS	B			A	A	B						
Approach Vol, veh/h					1094							
Approach Delay, s/veh					9.3							
Approach LOS					A							
Timer - Assigned Phs	1	2										
Phs Duration (G+Y+Rc), s	10.6	19.7										
Change Period (Y+Rc), s	4.5	4.5										
Max Green Setting (Gmax), s	18.1	15.2										
Max Q Clear Time (g_c+I1), s	5.1	10.1										
Green Ext Time (p_c), s	1.2	2.5										
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				10.0								
HCM 6th LOS				A								
<b>Notes</b>												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

# HCM 6th Signalized Intersection Summary

## 5: US 101 NB Ramps & Fairview Ave




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 											 
Traffic Volume (veh/h)	633	0	232	0	204	560	0	0	0	0	244	641
Future Volume (veh/h)	633	0	232	0	204	560	0	0	0	0	244	641
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	646	0	0	0	208	571				0	249	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	983	0		0	817	692				0	0	
Arrive On Green	0.28	0.00	0.00	0.00	0.44	0.44				0.00	0.00	0.00
Sat Flow, veh/h	3456	646		0	1870	1585					0	
Grp Volume(v), veh/h	646	10.9		0	208	571					0.0	
Grp Sat Flow(s),veh/h/ln	1728	B		0	1870	1585						
Q Serve(g_s), s	5.3			0.0	2.3	10.2						
Cycle Q Clear(g_c), s	5.3			0.0	2.3	10.2						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	983			0	817	692						
V/C Ratio(X)	0.66			0.00	0.25	0.82						
Avail Cap(c_a), veh/h	1937			0	817	692						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	10.2			0.0	5.8	8.0						
Incr Delay (d2), s/veh	0.8			0.0	0.8	10.8						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	2.5			0.0	1.1	6.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9			0.0	6.5	18.8						
LnGrp LOS	B			A	A	B						
Approach Vol, veh/h					779							
Approach Delay, s/veh					15.5							
Approach LOS					B							
Timer - Assigned Phs	1	2										
Phs Duration (G+Y+Rc), s	13.7	18.6										
Change Period (Y+Rc), s	4.5	4.5										
Max Green Setting (Gmax), s	18.1	14.1										
Max Q Clear Time (g_c+I1), s	7.3	12.2										
Green Ext Time (p_c), s	1.9	0.7										
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				13.4								
HCM 6th LOS				B								
<b>Notes</b>												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary  
 6: Fairview Ave & US 101 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	2	290	0	0	0	0	380	322	472	994	0
Future Volume (veh/h)	118	2	290	0	0	0	0	380	322	472	994	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	122	2	299				0	392	332	487	1025	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	416	7	376				0	1229	548	658	2174	0
Arrive On Green	0.24	0.24	0.24				0.00	0.35	0.35	0.19	0.61	0.00
Sat Flow, veh/h	1754	29	1585				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	124	0	299				0	392	332	487	1025	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1728	1777	0
Q Serve(g_s), s	3.4	0.0	10.6				0.0	4.8	10.3	7.9	9.4	0.0
Cycle Q Clear(g_c), s	3.4	0.0	10.6				0.0	4.8	10.3	7.9	9.4	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	423	0	376				0	1229	548	658	2174	0
V/C Ratio(X)	0.29	0.00	0.79				0.00	0.32	0.61	0.74	0.47	0.00
Avail Cap(c_a), veh/h	920	0	818				0	1229	548	1286	2174	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.6	0.0	21.4				0.0	14.4	16.2	22.8	6.3	0.0
Incr Delay (d2), s/veh	0.4	0.0	3.8				0.0	0.7	4.9	1.7	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
%ile BackOfQ(95%),veh/ln	2.4	0.0	7.0				0.0	3.3	7.2	5.5	4.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.0	0.0	25.2				0.0	15.0	21.1	24.4	7.1	0.0
LnGrp LOS	B	A	C				A	B	C	C	A	A
Approach Vol, veh/h		423						724			1512	
Approach Delay, s/veh		23.4						17.8			12.6	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2		4				6				
Phs Duration (G+Y+Rc), s	15.9	25.1		18.7				41.0				
Change Period (Y+Rc), s	4.5	4.5		4.5				4.5				
Max Green Setting (Gmax), s	22.2	9.8		30.8				36.5				
Max Q Clear Time (g_c+I1), s	9.9	12.3		12.6				11.4				
Green Ext Time (p_c), s	1.4	0.0		1.6				7.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			15.8									
HCM 6th LOS			B									



















# HCM 6th Signalized Intersection Summary

## 6: Fairview Ave & US 101 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	4	165	0	0	0	0	721	646	329	513	0
Future Volume (veh/h)	146	4	165	0	0	0	0	721	646	329	513	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	159	4	179				0	784	702	358	558	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	285	7	259				0	1619	722	513	2422	0
Arrive On Green	0.16	0.16	0.16				0.00	0.46	0.46	0.15	0.68	0.00
Sat Flow, veh/h	1740	44	1585				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	163	0	179				0	784	702	358	558	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1728	1777	0
Q Serve(g_s), s	4.9	0.0	6.2				0.0	9.0	25.1	5.7	3.4	0.0
Cycle Q Clear(g_c), s	4.9	0.0	6.2				0.0	9.0	25.1	5.7	3.4	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	292	0	259				0	1619	722	513	2422	0
V/C Ratio(X)	0.56	0.00	0.69				0.00	0.48	0.97	0.70	0.23	0.00
Avail Cap(c_a), veh/h	792	0	704				0	1619	722	1082	2422	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.4	0.0	22.9				0.0	11.0	15.5	23.5	3.5	0.0
Incr Delay (d2), s/veh	1.7	0.0	3.3				0.0	1.0	27.3	1.7	0.2	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
%ile BackOfQ(95%),veh/ln	3.6	0.0	4.2				0.0	5.6	18.5	4.0	1.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	0.0	26.2				0.0	12.1	42.8	25.2	3.7	0.0
LnGrp LOS	C	A	C				A	B	D	C	A	A
Approach Vol, veh/h		342						1486			916	
Approach Delay, s/veh		25.2						26.6			12.1	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	13.1	31.0	14.0	44.1								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	18.2	16.9	25.8	39.6								
Max Q Clear Time (g_c+I1), s	7.7	27.1	8.2	5.4								
Green Ext Time (p_c), s	0.9	0.0	1.4	4.0								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									



















# HCM 6th Signalized Intersection Summary

## 1: Los Carneros Rd & US 101 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	773	5	62	26	321	0	0	444	129
Future Volume (veh/h)	0	0	0	773	5	62	26	321	0	0	444	129
Initial Q (Qb), veh				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
Parking Bus, Adj				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		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				906	0	0	28	349	0	0	483	140
Peak Hour Factor				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	0	0	2	2
Cap, veh/h				1114	585	0	53	2059	0	0	1350	389
Arrive On Green				0.31	0.00	0.00	0.03	0.58	0.00	0.00	0.50	0.50
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	2816	784
Grp Volume(v), veh/h				906	0	0	28	349	0	0	314	309
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1777	1729
Q Serve(g_s), s				17.4	0.0	0.0	1.2	3.4	0.0	0.0	8.0	8.1
Cycle Q Clear(g_c), s				17.4	0.0	0.0	1.2	3.4	0.0	0.0	8.0	8.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.45
Lane Grp Cap(c), veh/h				1114	585	0	53	2059	0	0	881	858
V/C Ratio(X)				0.81	0.00	0.00	0.53	0.17	0.00	0.00	0.36	0.36
Avail Cap(c_a), veh/h				2352	1235	0	168	2059	0	0	881	858
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.5	0.0	0.0	35.5	7.3	0.0	0.0	11.5	11.5
Incr Delay (d2), s/veh				1.5	0.0	0.0	8.1	0.2	0.0	0.0	1.1	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				11.4	0.0	0.0	1.1	1.9	0.0	0.0	5.5	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.0	0.0	0.0	43.6	7.5	0.0	0.0	12.6	12.7
LnGrp LOS				C	A	A	D	A	A	A	B	B
Approach Vol, veh/h					906			377			623	
Approach Delay, s/veh					25.0			10.1			12.6	
Approach LOS					C			B			B	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	6.2	40.8		27.2			47.0					
Change Period (Y+Rc), s	4.0	4.0		4.0			4.0					
Max Green Setting (Gmax), s	7.0	32.0		49.0			43.0					
Max Q Clear Time (g_c+I1), s	3.2	10.1		19.4			5.4					
Green Ext Time (p_c), s	0.0	3.8		3.8			2.2					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.0								
HCM 6th LOS				B								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												




















# HCM 6th Signalized Intersection Summary

## 1: Los Carneros Rd & US 101 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	447	1	47	257	573	0	0	290	148
Future Volume (veh/h)	0	0	0	447	1	47	257	573	0	0	290	148
Initial Q (Qb), veh				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
Parking Bus, Adj				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		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				534	0	0	279	623	0	0	315	161
Peak Hour Factor				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	0	0	2	2
Cap, veh/h				674	354	0	327	2543	0	0	1111	555
Arrive On Green				0.19	0.00	0.00	0.18	0.72	0.00	0.00	0.48	0.48
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	2388	1147
Grp Volume(v), veh/h				534	0	0	279	623	0	0	242	234
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1777	1664
Q Serve(g_s), s				12.0	0.0	0.0	12.7	5.1	0.0	0.0	6.8	7.1
Cycle Q Clear(g_c), s				12.0	0.0	0.0	12.7	5.1	0.0	0.0	6.8	7.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.69
Lane Grp Cap(c), veh/h				674	354	0	327	2543	0	0	861	806
V/C Ratio(X)				0.79	0.00	0.00	0.85	0.25	0.00	0.00	0.28	0.29
Avail Cap(c_a), veh/h				1359	714	0	659	2543	0	0	861	806
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.4	0.0	0.0	33.1	4.1	0.0	0.0	12.9	13.0
Incr Delay (d2), s/veh				2.2	0.0	0.0	6.3	0.2	0.0	0.0	0.8	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				9.0	0.0	0.0	9.6	2.2	0.0	0.0	4.8	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.6	0.0	0.0	39.5	4.3	0.0	0.0	13.7	13.9
LnGrp LOS				C	A	A	D	A	A	A	B	B
Approach Vol, veh/h					534			902			476	
Approach Delay, s/veh					34.6			15.2			13.8	
Approach LOS					C			B			B	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	19.4	44.6		19.9			64.0					
Change Period (Y+Rc), s	4.0	4.0		4.0			4.0					
Max Green Setting (Gmax), s	31.0	25.0		32.0			60.0					
Max Q Clear Time (g_c+I1), s	14.7	9.1		14.0			7.1					
Green Ext Time (p_c), s	0.7	2.5		1.9			4.3					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				20.3								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												






















## HCM 6th Signalized Intersection Summary 2: US 101 SB Ramps & Los Carneros Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	3	228	0	0	0	0	142	368	93	1146	0
Future Volume (veh/h)	123	3	228	0	0	0	0	142	368	93	1146	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	134	3	248				0	154	400	101	1246	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	331	7	301				0	2124	948	131	2550	0
Arrive On Green	0.19	0.19	0.19				0.00	0.60	0.60	0.07	0.72	0.00
Sat Flow, veh/h	1744	39	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	137	0	248				0	154	400	101	1246	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	5.8	0.0	13.0				0.0	1.6	11.7	4.8	13.2	0.0
Cycle Q Clear(g_c), s	5.8	0.0	13.0				0.0	1.6	11.7	4.8	13.2	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	339	0	301				0	2124	948	131	2550	0
V/C Ratio(X)	0.40	0.00	0.82				0.00	0.07	0.42	0.77	0.49	0.00
Avail Cap(c_a), veh/h	619	0	550				0	2124	948	350	2550	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.7	0.0	33.6				0.0	7.3	9.3	39.3	5.3	0.0
Incr Delay (d2), s/veh	0.8	0.0	5.6				0.0	0.1	1.4	9.3	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
%ile BackOfQ(95%),veh/ln	4.5	0.0	9.1				0.0	0.9	6.5	4.3	6.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	39.2				0.0	7.4	10.7	48.6	6.0	0.0
LnGrp LOS	C	A	D				A	A	B	D	A	A
Approach Vol, veh/h		385						554			1347	
Approach Delay, s/veh		36.5						9.8			9.2	
Approach LOS		D						A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			10.3	55.7		20.4				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		62.0			17.0	41.0		30.0				
Max Q Clear Time (g_c+I1), s		15.2			6.8	13.7		15.0				
Green Ext Time (p_c), s		12.3			0.1	2.3		1.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			13.9									
HCM 6th LOS			B									





















## HCM 6th Signalized Intersection Summary

### 2: US 101 SB Ramps & Los Carneros Rd





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	2	33	0	0	0	0	717	1022	65	748	0
Future Volume (veh/h)	78	2	33	0	0	0	0	717	1022	65	748	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	85	2	36				0	779	1111	71	813	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	124	3	113				0	2632	1174	91	2977	0
Arrive On Green	0.07	0.07	0.07				0.00	0.74	0.74	0.05	0.84	0.00
Sat Flow, veh/h	1742	41	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	87	0	36				0	779	1111	71	813	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	4.2	0.0	1.9				0.0	6.4	53.2	3.5	4.2	0.0
Cycle Q Clear(g_c), s	4.2	0.0	1.9				0.0	6.4	53.2	3.5	4.2	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	127	0	113				0	2632	1174	91	2977	0
V/C Ratio(X)	0.69	0.00	0.32				0.00	0.30	0.95	0.78	0.27	0.00
Avail Cap(c_a), veh/h	379	0	336				0	2632	1174	142	2977	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.7	0.0	38.7				0.0	3.8	9.8	41.1	1.5	0.0
Incr Delay (d2), s/veh	6.4	0.0	1.6				0.0	0.3	16.2	13.1	0.2	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
%ile BackOfQ(95%),veh/ln	3.7	0.0	1.4				0.0	2.7	22.0	3.3	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	0.0	40.3				0.0	4.1	26.0	54.2	1.7	0.0
LnGrp LOS	D	A	D				A	A	C	D	A	A
Approach Vol, veh/h		123						1890			884	
Approach Delay, s/veh		44.5						17.0			5.9	
Approach LOS		D						B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.4			8.5	68.9		10.2				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		73.4			7.0	62.4		18.6				
Max Q Clear Time (g_c+I1), s		6.2			5.5	55.2		6.2				
Green Ext Time (p_c), s		6.7			0.0	5.2		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			14.8									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 5: US 101 NB Ramps & Fairview Ave




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 											 
Traffic Volume (veh/h)	386	0	127	0	526	537	0	0	0	0	117	916
Future Volume (veh/h)	386	0	127	0	526	537	0	0	0	0	117	916
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	398	0	0	0	542	554				0	121	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	695	0		0	938	795				0	0	
Arrive On Green	0.20	0.00	0.00	0.00	0.50	0.50				0.00	0.00	0.00
Sat Flow, veh/h	3456	398		0	1870	1585					0	
Grp Volume(v), veh/h	398	11.7		0	542	554					0.0	
Grp Sat Flow(s),veh/h/ln	1728	B		0	1870	1585						
Q Serve(g_s), s	3.1			0.0	6.2	8.1						
Cycle Q Clear(g_c), s	3.1			0.0	6.2	8.1						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	695			0	938	795						
V/C Ratio(X)	0.57			0.00	0.58	0.70						
Avail Cap(c_a), veh/h	2065			0	938	795						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	10.9			0.0	5.3	5.8						
Incr Delay (d2), s/veh	0.7			0.0	2.6	5.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	1.6			0.0	2.7	3.6						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7			0.0	7.9	10.8						
LnGrp LOS	B			A	A	B						
Approach Vol, veh/h					1096							
Approach Delay, s/veh					9.4							
Approach LOS					A							
Timer - Assigned Phs	1	2										
Phs Duration (G+Y+Rc), s	10.6	19.7										
Change Period (Y+Rc), s	4.5	4.5										
Max Green Setting (Gmax), s	18.1	15.2										
Max Q Clear Time (g_c+I1), s	5.1	10.1										
Green Ext Time (p_c), s	1.2	2.5										
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			10.0									
HCM 6th LOS			A									
<b>Notes</b>												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary  
 5: US 101 NB Ramps & Fairview Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 											 
Traffic Volume (veh/h)	636	0	232	0	205	560	0	0	0	0	245	641
Future Volume (veh/h)	636	0	232	0	205	560	0	0	0	0	245	641
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	649	0	0	0	209	571				0	250	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	986	0		0	816	691				0	0	
Arrive On Green	0.29	0.00	0.00	0.00	0.44	0.44				0.00	0.00	0.00
Sat Flow, veh/h	3456	649		0	1870	1585					0	
Grp Volume(v), veh/h	649	10.9		0	209	571					0.0	
Grp Sat Flow(s),veh/h/ln	1728	B		0	1870	1585						
Q Serve(g_s), s	5.3			0.0	2.3	10.3						
Cycle Q Clear(g_c), s	5.3			0.0	2.3	10.3						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	986			0	816	691						
V/C Ratio(X)	0.66			0.00	0.26	0.83						
Avail Cap(c_a), veh/h	1935			0	816	691						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	10.2			0.0	5.8	8.0						
Incr Delay (d2), s/veh	0.8			0.0	0.8	10.9						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	2.6			0.0	1.1	6.9						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9			0.0	6.5	18.9						
LnGrp LOS	B			A	A	B						
Approach Vol, veh/h					780							
Approach Delay, s/veh					15.6							
Approach LOS					B							
Timer - Assigned Phs	1	2										
Phs Duration (G+Y+Rc), s	13.7	18.6										
Change Period (Y+Rc), s	4.5	4.5										
Max Green Setting (Gmax), s	18.1	14.1										
Max Q Clear Time (g_c+I1), s	7.3	12.3										
Green Ext Time (p_c), s	1.9	0.7										
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				13.5								
HCM 6th LOS				B								
<b>Notes</b>												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												




















# HCM 6th Signalized Intersection Summary

## 6: Fairview Ave & US 101 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	2	290	0	0	0	0	381	323	472	999	0
Future Volume (veh/h)	118	2	290	0	0	0	0	381	323	472	999	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	122	2	299				0	393	333	487	1030	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	416	7	376				0	1229	548	658	2174	0
Arrive On Green	0.24	0.24	0.24				0.00	0.35	0.35	0.19	0.61	0.00
Sat Flow, veh/h	1754	29	1585				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	124	0	299				0	393	333	487	1030	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1728	1777	0
Q Serve(g_s), s	3.4	0.0	10.6				0.0	4.9	10.4	7.9	9.5	0.0
Cycle Q Clear(g_c), s	3.4	0.0	10.6				0.0	4.9	10.4	7.9	9.5	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	423	0	376				0	1229	548	658	2174	0
V/C Ratio(X)	0.29	0.00	0.79				0.00	0.32	0.61	0.74	0.47	0.00
Avail Cap(c_a), veh/h	920	0	818				0	1229	548	1286	2174	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.6	0.0	21.4				0.0	14.4	16.2	22.8	6.3	0.0
Incr Delay (d2), s/veh	0.4	0.0	3.8				0.0	0.7	4.9	1.7	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
%ile BackOfQ(95%),veh/ln	2.4	0.0	7.0				0.0	3.3	7.2	5.5	4.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.0	0.0	25.2				0.0	15.0	21.1	24.4	7.1	0.0
LnGrp LOS	B	A	C				A	B	C	C	A	A
Approach Vol, veh/h		423						726			1517	
Approach Delay, s/veh		23.4						17.8			12.6	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	15.9	25.1	18.7	41.0								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	22.2	9.8	30.8	36.5								
Max Q Clear Time (g_c+I1), s	9.9	12.4	12.6	11.5								
Green Ext Time (p_c), s	1.4	0.0	1.6	8.0								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			15.8									
HCM 6th LOS			B									



















# HCM 6th Signalized Intersection Summary

## 6: Fairview Ave & US 101 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	146	4	165	0	0	0	0	724	648	329	515	0
Future Volume (veh/h)	146	4	165	0	0	0	0	724	648	329	515	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	159	4	179				0	787	704	358	560	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	285	7	259				0	1619	722	513	2422	0
Arrive On Green	0.16	0.16	0.16				0.00	0.46	0.46	0.15	0.68	0.00
Sat Flow, veh/h	1740	44	1585				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	163	0	179				0	787	704	358	560	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1728	1777	0
Q Serve(g_s), s	4.9	0.0	6.2				0.0	9.0	25.3	5.7	3.5	0.0
Cycle Q Clear(g_c), s	4.9	0.0	6.2				0.0	9.0	25.3	5.7	3.5	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	292	0	259				0	1619	722	513	2422	0
V/C Ratio(X)	0.56	0.00	0.69				0.00	0.49	0.97	0.70	0.23	0.00
Avail Cap(c_a), veh/h	792	0	704				0	1619	722	1082	2422	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.4	0.0	22.9				0.0	11.1	15.5	23.5	3.5	0.0
Incr Delay (d2), s/veh	1.7	0.0	3.3				0.0	1.0	27.9	1.7	0.2	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
%ile BackOfQ(95%),veh/ln	3.6	0.0	4.2				0.0	5.6	18.7	4.0	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	0.0	26.2				0.0	12.1	43.4	25.2	3.7	0.0
LnGrp LOS	C	A	C				A	B	D	C	A	A
Approach Vol, veh/h		342						1491			918	
Approach Delay, s/veh		25.2						26.9			12.1	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	13.1	31.0	14.0	44.1								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	18.2	16.9	25.8	39.6								
Max Q Clear Time (g_c+I1), s	7.7	27.3	8.2	5.5								
Green Ext Time (p_c), s	0.9	0.0	1.4	4.0								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									



















# HCM 6th Signalized Intersection Summary

## 1: Los Carneros Rd & US 101 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	837	5	67	27	347	0	0	478	140
Future Volume (veh/h)	0	0	0	837	5	67	27	347	0	0	478	140
Initial Q (Qb), veh				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
Parking Bus, Adj				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		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				982	0	0	29	377	0	0	520	152
Peak Hour Factor				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	0	0	2	2
Cap, veh/h				1191	625	0	54	1995	0	0	1301	378
Arrive On Green				0.33	0.00	0.00	0.03	0.56	0.00	0.00	0.48	0.48
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	2809	790
Grp Volume(v), veh/h				982	0	0	29	377	0	0	339	333
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1777	1728
Q Serve(g_s), s				19.4	0.0	0.0	1.2	4.0	0.0	0.0	9.4	9.5
Cycle Q Clear(g_c), s				19.4	0.0	0.0	1.2	4.0	0.0	0.0	9.4	9.5
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.46
Lane Grp Cap(c), veh/h				1191	625	0	54	1995	0	0	851	828
V/C Ratio(X)				0.82	0.00	0.00	0.54	0.19	0.00	0.00	0.40	0.40
Avail Cap(c_a), veh/h				2279	1196	0	163	1995	0	0	851	828
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.4	0.0	0.0	36.6	8.2	0.0	0.0	12.9	12.9
Incr Delay (d2), s/veh				1.5	0.0	0.0	8.3	0.2	0.0	0.0	1.4	1.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				12.5	0.0	0.0	1.1	2.3	0.0	0.0	6.6	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.9	0.0	0.0	44.9	8.5	0.0	0.0	14.3	14.3
LnGrp LOS				C	A	A	D	A	A	A	B	B
Approach Vol, veh/h					982			406			672	
Approach Delay, s/veh					24.9			11.1			14.3	
Approach LOS					C			B			B	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	6.3	40.7		29.6			47.0					
Change Period (Y+Rc), s	4.0	4.0		4.0			4.0					
Max Green Setting (Gmax), s	7.0	32.0		49.0			43.0					
Max Q Clear Time (g_c+I1), s	3.2	11.5		21.4			6.0					
Green Ext Time (p_c), s	0.0	4.0		4.2			2.4					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.7								
HCM 6th LOS				B								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												




















# HCM 6th Signalized Intersection Summary

## 1: Los Carneros Rd & US 101 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	484	1	51	276	618	0	0	313	160
Future Volume (veh/h)	0	0	0	484	1	51	276	618	0	0	313	160
Initial Q (Qb), veh				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
Parking Bus, Adj				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		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				578	0	0	300	672	0	0	340	174
Peak Hour Factor				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	0	0	2	2
Cap, veh/h				719	377	0	347	2503	0	0	1059	532
Arrive On Green				0.20	0.00	0.00	0.19	0.70	0.00	0.00	0.46	0.46
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	2384	1150
Grp Volume(v), veh/h				578	0	0	300	672	0	0	262	252
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1777	1663
Q Serve(g_s), s				13.2	0.0	0.0	13.9	5.9	0.0	0.0	7.9	8.2
Cycle Q Clear(g_c), s				13.2	0.0	0.0	13.9	5.9	0.0	0.0	7.9	8.2
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.69
Lane Grp Cap(c), veh/h				719	377	0	347	2503	0	0	822	769
V/C Ratio(X)				0.80	0.00	0.00	0.86	0.27	0.00	0.00	0.32	0.33
Avail Cap(c_a), veh/h				1338	703	0	648	2503	0	0	822	769
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.4	0.0	0.0	33.2	4.6	0.0	0.0	14.4	14.5
Incr Delay (d2), s/veh				2.2	0.0	0.0	6.4	0.3	0.0	0.0	1.0	1.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				9.7	0.0	0.0	10.3	2.7	0.0	0.0	5.7	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.6	0.0	0.0	39.6	4.9	0.0	0.0	15.5	15.6
LnGrp LOS				C	A	A	D	A	A	A	B	B
Approach Vol, veh/h					578			972			514	
Approach Delay, s/veh					34.6			15.6			15.5	
Approach LOS					C			B			B	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	20.6	43.4		21.2			64.0					
Change Period (Y+Rc), s	4.0	4.0		4.0			4.0					
Max Green Setting (Gmax), s	31.0	25.0		32.0			60.0					
Max Q Clear Time (g_c+I1), s	15.9	10.2		15.2			7.9					
Green Ext Time (p_c), s	0.7	2.7		2.0			4.7					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				20.9								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												






















## HCM 6th Signalized Intersection Summary 2: US 101 SB Ramps & Los Carneros Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	3	245	0	0	0	0	153	398	101	1238	0
Future Volume (veh/h)	133	3	245	0	0	0	0	153	398	101	1238	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	145	3	266				0	166	433	110	1346	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	351	7	319				0	2070	923	141	2514	0
Arrive On Green	0.20	0.20	0.20				0.00	0.58	0.58	0.08	0.71	0.00
Sat Flow, veh/h	1747	36	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	148	0	266				0	166	433	110	1346	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	6.3	0.0	14.1				0.0	1.8	13.8	5.3	15.6	0.0
Cycle Q Clear(g_c), s	6.3	0.0	14.1				0.0	1.8	13.8	5.3	15.6	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	359	0	319				0	2070	923	141	2514	0
V/C Ratio(X)	0.41	0.00	0.83				0.00	0.08	0.47	0.78	0.54	0.00
Avail Cap(c_a), veh/h	610	0	543				0	2070	923	346	2514	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	0.0	33.6				0.0	8.0	10.5	39.6	6.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	5.7				0.0	0.1	1.7	8.9	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
%ile BackOfQ(95%),veh/ln	4.9	0.0	9.7				0.0	1.1	7.8	4.7	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	39.3				0.0	8.1	12.2	48.4	6.9	0.0
LnGrp LOS	C	A	D				A	A	B	D	A	A
Approach Vol, veh/h		414						599			1456	
Approach Delay, s/veh		36.4						11.1			10.0	
Approach LOS		D						B			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			11.0	55.0		21.6				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		62.0			17.0	41.0		30.0				
Max Q Clear Time (g_c+I1), s		17.6			7.3	15.8		16.1				
Green Ext Time (p_c), s		13.8			0.2	2.5		1.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			14.7									
HCM 6th LOS			B									





















## HCM 6th Signalized Intersection Summary

### 2: US 101 SB Ramps & Los Carneros Rd





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	2	35	0	0	0	0	773	1106	70	809	0
Future Volume (veh/h)	84	2	35	0	0	0	0	773	1106	70	809	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	91	2	38				0	840	1202	76	879	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	131	3	119				0	2607	1163	98	2964	0
Arrive On Green	0.08	0.08	0.08				0.00	0.73	0.73	0.05	0.83	0.00
Sat Flow, veh/h	1745	38	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	93	0	38				0	840	1202	76	879	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	4.5	0.0	2.0				0.0	7.3	64.6	3.7	4.8	0.0
Cycle Q Clear(g_c), s	4.5	0.0	2.0				0.0	7.3	64.6	3.7	4.8	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	134	0	119				0	2607	1163	98	2964	0
V/C Ratio(X)	0.70	0.00	0.32				0.00	0.32	1.03	0.78	0.30	0.00
Avail Cap(c_a), veh/h	377	0	335				0	2607	1163	142	2964	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.7	0.0	38.6				0.0	4.1	11.7	41.1	1.6	0.0
Incr Delay (d2), s/veh	6.3	0.0	1.5				0.0	0.3	35.4	15.2	0.3	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
%ile BackOfQ(95%),veh/ln	3.9	0.0	1.5				0.0	3.1	33.4	3.6	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	0.0	40.1				0.0	4.4	47.1	56.3	1.9	0.0
LnGrp LOS	D	A	D				A	A	F	E	A	A
Approach Vol, veh/h		131						2042			955	
Approach Delay, s/veh		44.3						29.6			6.2	
Approach LOS		D						C			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.4			8.8	68.6		10.6				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		73.4			7.0	62.4		18.6				
Max Q Clear Time (g_c+I1), s		6.8			5.7	66.6		6.5				
Green Ext Time (p_c), s		7.5			0.0	0.0		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			23.0									
HCM 6th LOS			C									

# HCM 6th Signalized Intersection Summary

## 5: US 101 NB Ramps & Fairview Ave




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 											 
Traffic Volume (veh/h)	417	0	137	0	567	581	0	0	0	0	123	992
Future Volume (veh/h)	417	0	137	0	567	581	0	0	0	0	123	992
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	430	0	0	0	585	599				0	127	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	735	0		0	925	784				0	0	
Arrive On Green	0.21	0.00	0.00	0.00	0.49	0.49				0.00	0.00	0.00
Sat Flow, veh/h	3456	430		0	1870	1585					0	
Grp Volume(v), veh/h	430	11.6		0	585	599					0.0	
Grp Sat Flow(s),veh/h/ln	1728	B		0	1870	1585						
Q Serve(g_s), s	3.4			0.0	7.1	9.4						
Cycle Q Clear(g_c), s	3.4			0.0	7.1	9.4						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	735			0	925	784						
V/C Ratio(X)	0.59			0.00	0.63	0.76						
Avail Cap(c_a), veh/h	2035			0	925	784						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	10.9			0.0	5.7	6.3						
Incr Delay (d2), s/veh	0.7			0.0	3.3	7.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	1.7			0.0	3.4	4.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6			0.0	9.0	13.3						
LnGrp LOS	B			A	A	B						
Approach Vol, veh/h					1184							
Approach Delay, s/veh					11.2							
Approach LOS					B							
Timer - Assigned Phs	1	2										
Phs Duration (G+Y+Rc), s	11.0	19.7										
Change Period (Y+Rc), s	4.5	4.5										
Max Green Setting (Gmax), s	18.1	15.2										
Max Q Clear Time (g_c+I1), s	5.4	11.4										
Green Ext Time (p_c), s	1.3	2.1										
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					11.3							
HCM 6th LOS					B							
<b>Notes</b>												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary  
 5: US 101 NB Ramps & Fairview Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 											 
Traffic Volume (veh/h)	685	0	251	0	221	606	0	0	0	0	264	694
Future Volume (veh/h)	685	0	251	0	221	606	0	0	0	0	264	694
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	699	0	0	0	226	618				0	269	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	1035	0		0	800	678				0	0	
Arrive On Green	0.30	0.00	0.00	0.00	0.43	0.43				0.00	0.00	0.00
Sat Flow, veh/h	3456	699		0	1870	1585					0	
Grp Volume(v), veh/h	699	10.9		0	226	618					0.0	
Grp Sat Flow(s),veh/h/ln	1728	B		0	1870	1585						
Q Serve(g_s), s	5.9			0.0	2.6	12.1						
Cycle Q Clear(g_c), s	5.9			0.0	2.6	12.1						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	1035			0	800	678						
V/C Ratio(X)	0.68			0.00	0.28	0.91						
Avail Cap(c_a), veh/h	1897			0	800	678						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	10.1			0.0	6.1	8.9						
Incr Delay (d2), s/veh	0.8			0.0	0.9	18.7						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	2.8			0.0	1.3	9.6						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9			0.0	7.0	27.6						
LnGrp LOS	B			A	A	C						
Approach Vol, veh/h					844							
Approach Delay, s/veh					22.1							
Approach LOS					C							
Timer - Assigned Phs	1	2										
Phs Duration (G+Y+Rc), s	14.4	18.6										
Change Period (Y+Rc), s	4.5	4.5										
Max Green Setting (Gmax), s	18.1	14.1										
Max Q Clear Time (g_c+I1), s	7.9	14.1										
Green Ext Time (p_c), s	2.0	0.0										
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			17.0									
HCM 6th LOS			B									
<b>Notes</b>												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												




















# HCM 6th Signalized Intersection Summary

## 6: Fairview Ave & US 101 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	2	314	0	0	0	0	411	349	511	1076	0
Future Volume (veh/h)	128	2	314	0	0	0	0	411	349	511	1076	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	132	2	324				0	424	360	527	1109	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	444	7	401				0	1150	513	697	2130	0
Arrive On Green	0.25	0.25	0.25				0.00	0.32	0.32	0.20	0.60	0.00
Sat Flow, veh/h	1756	27	1585				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	134	0	324				0	424	360	527	1109	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1728	1777	0
Q Serve(g_s), s	3.7	0.0	11.7				0.0	5.6	12.1	8.7	11.1	0.0
Cycle Q Clear(g_c), s	3.7	0.0	11.7				0.0	5.6	12.1	8.7	11.1	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	451	0	401				0	1150	513	697	2130	0
V/C Ratio(X)	0.30	0.00	0.81				0.00	0.37	0.70	0.76	0.52	0.00
Avail Cap(c_a), veh/h	901	0	802				0	1150	513	1260	2130	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.4	0.0	21.4				0.0	15.8	18.0	22.9	7.1	0.0
Incr Delay (d2), s/veh	0.4	0.0	3.9				0.0	0.9	7.8	1.7	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
%ile BackOfQ(95%),veh/ln	2.6	0.0	7.7				0.0	3.9	8.7	6.1	5.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	0.0	25.3				0.0	16.7	25.8	24.6	8.0	0.0
LnGrp LOS	B	A	C				A	B	C	C	A	A
Approach Vol, veh/h		458						784			1636	
Approach Delay, s/veh		23.4						20.9			13.4	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	16.8	24.2	19.9	41.0								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	22.2	9.8	30.8	36.5								
Max Q Clear Time (g_c+I1), s	10.7	14.1	13.7	13.1								
Green Ext Time (p_c), s	1.5	0.0	1.7	8.5								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			17.0									
HCM 6th LOS			B									



















# HCM 6th Signalized Intersection Summary

## 6: Fairview Ave & US 101 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	4	179	0	0	0	0	780	699	356	555	0
Future Volume (veh/h)	158	4	179	0	0	0	0	780	699	356	555	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	172	4	195				0	848	760	387	603	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	304	7	277				0	1561	696	542	2390	0
Arrive On Green	0.17	0.17	0.17				0.00	0.44	0.44	0.16	0.67	0.00
Sat Flow, veh/h	1743	41	1585				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	176	0	195				0	848	760	387	603	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1728	1777	0
Q Serve(g_s), s	5.3	0.0	6.8				0.0	10.3	25.9	6.3	3.9	0.0
Cycle Q Clear(g_c), s	5.3	0.0	6.8				0.0	10.3	25.9	6.3	3.9	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	311	0	277				0	1561	696	542	2390	0
V/C Ratio(X)	0.57	0.00	0.71				0.00	0.54	1.09	0.71	0.25	0.00
Avail Cap(c_a), veh/h	781	0	695				0	1561	696	1068	2390	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.3	0.0	22.9				0.0	12.2	16.5	23.6	3.8	0.0
Incr Delay (d2), s/veh	1.6	0.0	3.3				0.0	1.4	61.8	1.8	0.3	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
%ile BackOfQ(95%),veh/ln	3.9	0.0	4.6				0.0	6.6	28.4	4.4	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.9	0.0	26.2				0.0	13.5	78.3	25.3	4.1	0.0
LnGrp LOS	C	A	C				A	B	F	C	A	A
Approach Vol, veh/h		371						1608			990	
Approach Delay, s/veh		25.1						44.1			12.4	
Approach LOS		C						D			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	13.7	30.4	14.8	44.1								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	18.2	16.9	25.8	39.6								
Max Q Clear Time (g_c+I1), s	8.3	27.9	8.8	5.9								
Green Ext Time (p_c), s	1.0	0.0	1.5	4.4								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			31.2									
HCM 6th LOS			C									



















# HCM 6th Signalized Intersection Summary

## 1: Los Carneros Rd & US 101 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	837	5	67	28	347	0	0	480	140
Future Volume (veh/h)	0	0	0	837	5	67	28	347	0	0	480	140
Initial Q (Qb), veh				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
Parking Bus, Adj				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		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				982	0	0	30	377	0	0	522	152
Peak Hour Factor				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	0	0	2	2
Cap, veh/h				1191	625	0	55	1995	0	0	1300	377
Arrive On Green				0.33	0.00	0.00	0.03	0.56	0.00	0.00	0.48	0.48
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	2811	788
Grp Volume(v), veh/h				982	0	0	30	377	0	0	340	334
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1777	1729
Q Serve(g_s), s				19.4	0.0	0.0	1.3	4.0	0.0	0.0	9.5	9.6
Cycle Q Clear(g_c), s				19.4	0.0	0.0	1.3	4.0	0.0	0.0	9.5	9.6
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.46
Lane Grp Cap(c), veh/h				1191	625	0	55	1995	0	0	850	827
V/C Ratio(X)				0.82	0.00	0.00	0.55	0.19	0.00	0.00	0.40	0.40
Avail Cap(c_a), veh/h				2279	1196	0	163	1995	0	0	850	827
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.4	0.0	0.0	36.6	8.2	0.0	0.0	12.9	12.9
Incr Delay (d2), s/veh				1.5	0.0	0.0	8.2	0.2	0.0	0.0	1.4	1.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				12.5	0.0	0.0	1.2	2.3	0.0	0.0	6.7	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.9	0.0	0.0	44.8	8.5	0.0	0.0	14.3	14.4
LnGrp LOS				C	A	A	D	A	A	A	B	B
Approach Vol, veh/h					982			407			674	
Approach Delay, s/veh					24.9			11.1			14.3	
Approach LOS					C			B			B	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	6.4	40.6		29.6			47.0					
Change Period (Y+Rc), s	4.0	4.0		4.0			4.0					
Max Green Setting (Gmax), s	7.0	32.0		49.0			43.0					
Max Q Clear Time (g_c+I1), s	3.3	11.6		21.4			6.0					
Green Ext Time (p_c), s	0.0	4.1		4.2			2.4					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.8								
HCM 6th LOS				B								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

# HCM 6th Signalized Intersection Summary




















## 1: Los Carneros Rd & US 101 NB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	484	1	51	278	620	0	0	314	160
Future Volume (veh/h)	0	0	0	484	1	51	278	620	0	0	314	160
Initial Q (Qb), veh				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
Parking Bus, Adj				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		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				578	0	0	302	674	0	0	341	174
Peak Hour Factor				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	0	0	2	2
Cap, veh/h				719	377	0	349	2503	0	0	1058	529
Arrive On Green				0.20	0.00	0.00	0.20	0.70	0.00	0.00	0.46	0.46
Sat Flow, veh/h				3563	1870	0	1781	3647	0	0	2386	1148
Grp Volume(v), veh/h				578	0	0	302	674	0	0	263	252
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1777	0	0	1777	1664
Q Serve(g_s), s				13.2	0.0	0.0	14.0	5.9	0.0	0.0	8.0	8.2
Cycle Q Clear(g_c), s				13.2	0.0	0.0	14.0	5.9	0.0	0.0	8.0	8.2
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.69
Lane Grp Cap(c), veh/h				719	377	0	349	2503	0	0	820	768
V/C Ratio(X)				0.80	0.00	0.00	0.86	0.27	0.00	0.00	0.32	0.33
Avail Cap(c_a), veh/h				1338	703	0	648	2503	0	0	820	768
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.4	0.0	0.0	33.1	4.6	0.0	0.0	14.5	14.6
Incr Delay (d2), s/veh				2.2	0.0	0.0	6.4	0.3	0.0	0.0	1.0	1.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln				9.7	0.0	0.0	10.3	2.7	0.0	0.0	5.8	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.6	0.0	0.0	39.6	4.9	0.0	0.0	15.5	15.7
LnGrp LOS				C	A	A	D	A	A	A	B	B
Approach Vol, veh/h					578			976			515	
Approach Delay, s/veh					34.6			15.6			15.6	
Approach LOS					C			B			B	
Timer - Assigned Phs	1	2		4			6					
Phs Duration (G+Y+Rc), s	20.7	43.3		21.2			64.0					
Change Period (Y+Rc), s	4.0	4.0		4.0			4.0					
Max Green Setting (Gmax), s	31.0	25.0		32.0			60.0					
Max Q Clear Time (g_c+I1), s	16.0	10.2		15.2			7.9					
Green Ext Time (p_c), s	0.7	2.7		2.0			4.8					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				20.9								
HCM 6th LOS				C								
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												






















## HCM 6th Signalized Intersection Summary

### 2: US 101 SB Ramps & Los Carneros Rd





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	3	247	0	0	0	0	154	398	101	1240	0
Future Volume (veh/h)	133	3	247	0	0	0	0	154	398	101	1240	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	145	3	268				0	167	433	110	1348	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	353	7	321				0	2067	922	141	2511	0
Arrive On Green	0.20	0.20	0.20				0.00	0.58	0.58	0.08	0.71	0.00
Sat Flow, veh/h	1747	36	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	148	0	268				0	167	433	110	1348	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	6.3	0.0	14.2				0.0	1.8	13.8	5.3	15.7	0.0
Cycle Q Clear(g_c), s	6.3	0.0	14.2				0.0	1.8	13.8	5.3	15.7	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	361	0	321				0	2067	922	141	2511	0
V/C Ratio(X)	0.41	0.00	0.84				0.00	0.08	0.47	0.78	0.54	0.00
Avail Cap(c_a), veh/h	610	0	542				0	2067	922	345	2511	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	0.0	33.6				0.0	8.1	10.6	39.6	6.1	0.0
Incr Delay (d2), s/veh	0.7	0.0	5.7				0.0	0.1	1.7	8.9	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
%ile BackOfQ(95%),veh/ln	4.9	0.0	9.8				0.0	1.1	7.8	4.7	8.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	39.3				0.0	8.1	12.3	48.5	6.9	0.0
LnGrp LOS	C	A	D				A	A	B	D	A	A
Approach Vol, veh/h		416						600			1458	
Approach Delay, s/veh		36.4						11.1			10.1	
Approach LOS		D						B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.0			11.0	55.0		21.8				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		62.0			17.0	41.0		30.0				
Max Q Clear Time (g_c+I1), s		17.7			7.3	15.8		16.2				
Green Ext Time (p_c), s		13.9			0.2	2.5		1.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			14.8									
HCM 6th LOS			B									

## HCM 6th Signalized Intersection Summary





















### 2: US 101 SB Ramps & Los Carneros Rd

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	2	36	0	0	0	0	776	1106	70	810	0
Future Volume (veh/h)	84	2	36	0	0	0	0	776	1106	70	810	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	91	2	39				0	843	1202	76	880	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	131	3	119				0	2607	1163	98	2964	0
Arrive On Green	0.08	0.08	0.08				0.00	0.73	0.73	0.05	0.83	0.00
Sat Flow, veh/h	1745	38	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	93	0	39				0	843	1202	76	880	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	4.5	0.0	2.1				0.0	7.3	64.6	3.7	4.8	0.0
Cycle Q Clear(g_c), s	4.5	0.0	2.1				0.0	7.3	64.6	3.7	4.8	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	134	0	119				0	2607	1163	98	2964	0
V/C Ratio(X)	0.69	0.00	0.33				0.00	0.32	1.03	0.78	0.30	0.00
Avail Cap(c_a), veh/h	377	0	335				0	2607	1163	142	2964	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.7	0.0	38.6				0.0	4.1	11.7	41.1	1.6	0.0
Incr Delay (d2), s/veh	6.3	0.0	1.6				0.0	0.3	35.5	15.3	0.3	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
%ile BackOfQ(95%),veh/ln	3.9	0.0	1.5				0.0	3.1	33.4	3.6	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.0	0.0	40.2				0.0	4.4	47.2	56.3	1.9	0.0
LnGrp LOS	D	A	D				A	A	F	E	A	A
Approach Vol, veh/h		132						2045			956	
Approach Delay, s/veh		44.3						29.6			6.2	
Approach LOS		D						C			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.4			8.8	68.6		10.6				
Change Period (Y+Rc), s		4.0			4.0	4.0		4.0				
Max Green Setting (Gmax), s		73.4			7.0	62.4		18.6				
Max Q Clear Time (g_c+I1), s		6.8			5.7	66.6		6.5				
Green Ext Time (p_c), s		7.5			0.0	0.0		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			23.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary  
 5: US 101 NB Ramps & Fairview Ave




















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 											 
Traffic Volume (veh/h)	418	0	137	0	569	581	0	0	0	0	126	992
Future Volume (veh/h)	418	0	137	0	569	581	0	0	0	0	126	992
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	431	0	0	0	587	599				0	130	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	736	0		0	925	784				0	0	
Arrive On Green	0.21	0.00	0.00	0.00	0.49	0.49				0.00	0.00	0.00
Sat Flow, veh/h	3456	431		0	1870	1585					0	
Grp Volume(v), veh/h	431	11.6		0	587	599					0.0	
Grp Sat Flow(s),veh/h/ln	1728	B		0	1870	1585						
Q Serve(g_s), s	3.4			0.0	7.1	9.4						
Cycle Q Clear(g_c), s	3.4			0.0	7.1	9.4						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	736			0	925	784						
V/C Ratio(X)	0.59			0.00	0.63	0.76						
Avail Cap(c_a), veh/h	2034			0	925	784						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	10.9			0.0	5.7	6.3						
Incr Delay (d2), s/veh	0.7			0.0	3.3	7.0						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	1.7			0.0	3.4	4.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6			0.0	9.0	13.3						
LnGrp LOS	B			A	A	B						
Approach Vol, veh/h					1186							
Approach Delay, s/veh					11.2							
Approach LOS					B							
Timer - Assigned Phs	1	2										
Phs Duration (G+Y+Rc), s	11.0	19.7										
Change Period (Y+Rc), s	4.5	4.5										
Max Green Setting (Gmax), s	18.1	15.2										
Max Q Clear Time (g_c+I1), s	5.4	11.4										
Green Ext Time (p_c), s	1.3	2.1										
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				11.3								
HCM 6th LOS				B								
<b>Notes</b>												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary  
 5: US 101 NB Ramps & Fairview Ave

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 											 
Traffic Volume (veh/h)	688	0	251	0	222	606	0	0	0	0	265	694
Future Volume (veh/h)	688	0	251	0	222	606	0	0	0	0	265	694
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	0	1870	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	702	0	0	0	227	618				0	270	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	2	0	2	0	2	2				0	2	2
Cap, veh/h	1038	0		0	799	677				0	0	
Arrive On Green	0.30	0.00	0.00	0.00	0.43	0.43				0.00	0.00	0.00
Sat Flow, veh/h	3456	702		0	1870	1585					0	
Grp Volume(v), veh/h	702	10.9		0	227	618					0.0	
Grp Sat Flow(s),veh/h/ln	1728	B		0	1870	1585						
Q Serve(g_s), s	5.9			0.0	2.6	12.1						
Cycle Q Clear(g_c), s	5.9			0.0	2.6	12.1						
Prop In Lane	1.00			0.00		1.00						
Lane Grp Cap(c), veh/h	1038			0	799	677						
V/C Ratio(X)	0.68			0.00	0.28	0.91						
Avail Cap(c_a), veh/h	1894			0	799	677						
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	1.00						
Uniform Delay (d), s/veh	10.1			0.0	6.2	8.9						
Incr Delay (d2), s/veh	0.8			0.0	0.9	18.8						
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0						
%ile BackOfQ(95%),veh/ln	2.8			0.0	1.4	9.6						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9			0.0	7.1	27.7						
LnGrp LOS	B			A	A	C						
Approach Vol, veh/h					845							
Approach Delay, s/veh					22.2							
Approach LOS					C							
Timer - Assigned Phs	1	2										
Phs Duration (G+Y+Rc), s	14.4	18.6										
Change Period (Y+Rc), s	4.5	4.5										
Max Green Setting (Gmax), s	18.1	14.1										
Max Q Clear Time (g_c+I1), s	7.9	14.1										
Green Ext Time (p_c), s	2.0	0.0										
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				17.1								
HCM 6th LOS				B								
<b>Notes</b>												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												




















# HCM 6th Signalized Intersection Summary

## 6: Fairview Ave & US 101 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	2	314	0	0	0	0	412	350	511	1081	0
Future Volume (veh/h)	128	2	314	0	0	0	0	412	350	511	1081	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	132	2	324				0	425	361	527	1114	0
Peak Hour Factor	0.97	0.97	0.97				0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	444	7	401				0	1150	513	697	2130	0
Arrive On Green	0.25	0.25	0.25				0.00	0.32	0.32	0.20	0.60	0.00
Sat Flow, veh/h	1756	27	1585				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	134	0	324				0	425	361	527	1114	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1728	1777	0
Q Serve(g_s), s	3.7	0.0	11.7				0.0	5.6	12.2	8.7	11.1	0.0
Cycle Q Clear(g_c), s	3.7	0.0	11.7				0.0	5.6	12.2	8.7	11.1	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	451	0	401				0	1150	513	697	2130	0
V/C Ratio(X)	0.30	0.00	0.81				0.00	0.37	0.70	0.76	0.52	0.00
Avail Cap(c_a), veh/h	901	0	802				0	1150	513	1260	2130	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.4	0.0	21.4				0.0	15.8	18.0	22.9	7.1	0.0
Incr Delay (d2), s/veh	0.4	0.0	3.9				0.0	0.9	7.9	1.7	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
%ile BackOfQ(95%),veh/ln	2.6	0.0	7.7				0.0	3.9	8.7	6.1	5.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	0.0	25.3				0.0	16.7	25.9	24.6	8.0	0.0
LnGrp LOS	B	A	C				A	B	C	C	A	A
Approach Vol, veh/h		458						786			1641	
Approach Delay, s/veh		23.4						21.0			13.4	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	16.8	24.2	19.9	41.0								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	22.2	9.8	30.8	36.5								
Max Q Clear Time (g_c+I1), s	10.7	14.2	13.7	13.1								
Green Ext Time (p_c), s	1.5	0.0	1.7	8.6								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			17.0									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 6: Fairview Ave & US 101 SB Ramps

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	4	179	0	0	0	0	783	701	356	557	0
Future Volume (veh/h)	158	4	179	0	0	0	0	783	701	356	557	0
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	172	4	195				0	851	762	387	605	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	304	7	277				0	1561	696	542	2390	0
Arrive On Green	0.17	0.17	0.17				0.00	0.44	0.44	0.16	0.67	0.00
Sat Flow, veh/h	1743	41	1585				0	3647	1585	3456	3647	0
Grp Volume(v), veh/h	176	0	195				0	851	762	387	605	0
Grp Sat Flow(s),veh/h/ln	1783	0	1585				0	1777	1585	1728	1777	0
Q Serve(g_s), s	5.3	0.0	6.8				0.0	10.4	25.9	6.3	4.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	6.8				0.0	10.4	25.9	6.3	4.0	0.0
Prop In Lane	0.98		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	311	0	277				0	1561	696	542	2390	0
V/C Ratio(X)	0.57	0.00	0.71				0.00	0.55	1.09	0.71	0.25	0.00
Avail Cap(c_a), veh/h	781	0	695				0	1561	696	1068	2390	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.3	0.0	22.9				0.0	12.2	16.5	23.6	3.8	0.0
Incr Delay (d2), s/veh	1.6	0.0	3.3				0.0	1.4	62.8	1.8	0.3	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
%ile BackOfQ(95%),veh/ln	3.9	0.0	4.6				0.0	6.6	28.7	4.4	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.9	0.0	26.2				0.0	13.5	79.3	25.3	4.1	0.0
LnGrp LOS	C	A	C				A	B	F	C	A	A
Approach Vol, veh/h		371						1613			992	
Approach Delay, s/veh		25.1						44.6			12.4	
Approach LOS		C						D			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	13.7	30.4	14.8	44.1								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	18.2	16.9	25.8	39.6								
Max Q Clear Time (g_c+I1), s	8.3	27.9	8.8	6.0								
Green Ext Time (p_c), s	1.0	0.0	1.5	4.4								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			31.4									
HCM 6th LOS			C									