2150 HILLCREST DRIVE
Traffic, Circulation and Vehicle Miles Traveled (VMT) Study

City of Thousand Oaks, CA

March 23, 2023

PN: 2042649500

Prepared By:

Stantec

200 E. Carrillo Street, Suite 101
Santa Barbara, CA 93101
Phone: (805) 963-9532

TABLE OF CONTENTS

LIST OF TABLES

TABLE OF EXHIBITS

TECHNICAL APPENDIX

INTRODUCTION

Stantec has prepared the following draft traffic and circulation study for the 2150 W. Hillcrest Drive Project. The traffic and circulation study provides an assessment of the existing and future traffic conditions within the study area, determines the trip generation and trip distribution for the proposed development, evaluates the potential traffic impacts to the vicinity intersections and provides feasible mitigations where applicable. The study incorporates a discussion of the site access and circulation plan and parking supply. The report also includes a summary of the vehicle miles traveled (VMT) analysis. The VMT analysis memorandum prepared by Iteris Inc. is included in the technical appendix.

PROJECT DESCRIPTION

The project site is located at 2150 W. Hillcrest Drive and is currently occupied by a vacant 51,000 square feet (SF) office building. The proposed project includes the demolition of the existing building and construction of 333 multi-family units and 6,500 SF of ground-floor commercial space. It should be noted that the proposed ground-floor commercial space may be reduced in size subsequent to preparation of this report. However, 6,500 SF of commercial space was utilized in the report herein to provide a conservative analysis. The existing building has been vacant prior to 2019, therefore this study assumes the existing building does not generate any vehicle trips. Exhibit 1 shows the location of the project site in the City of Thousand Oaks and Exhibit 2 illustrates the site plan.

Access is proposed via two new driveways that connect to the south side of Hillcrest Drive. The western driveway accommodates full inbound access (left-turn and right-turn ingress movements). However, outbound access is restricted to right-turn egress movements only (no left-turn egress movements permitted). and the eastern driveway is full access. Both driveways are controlled by a stop sign facing each outbound driveway approach..

STUDY METHODOLOGY

Traffic Analysis Scenarios

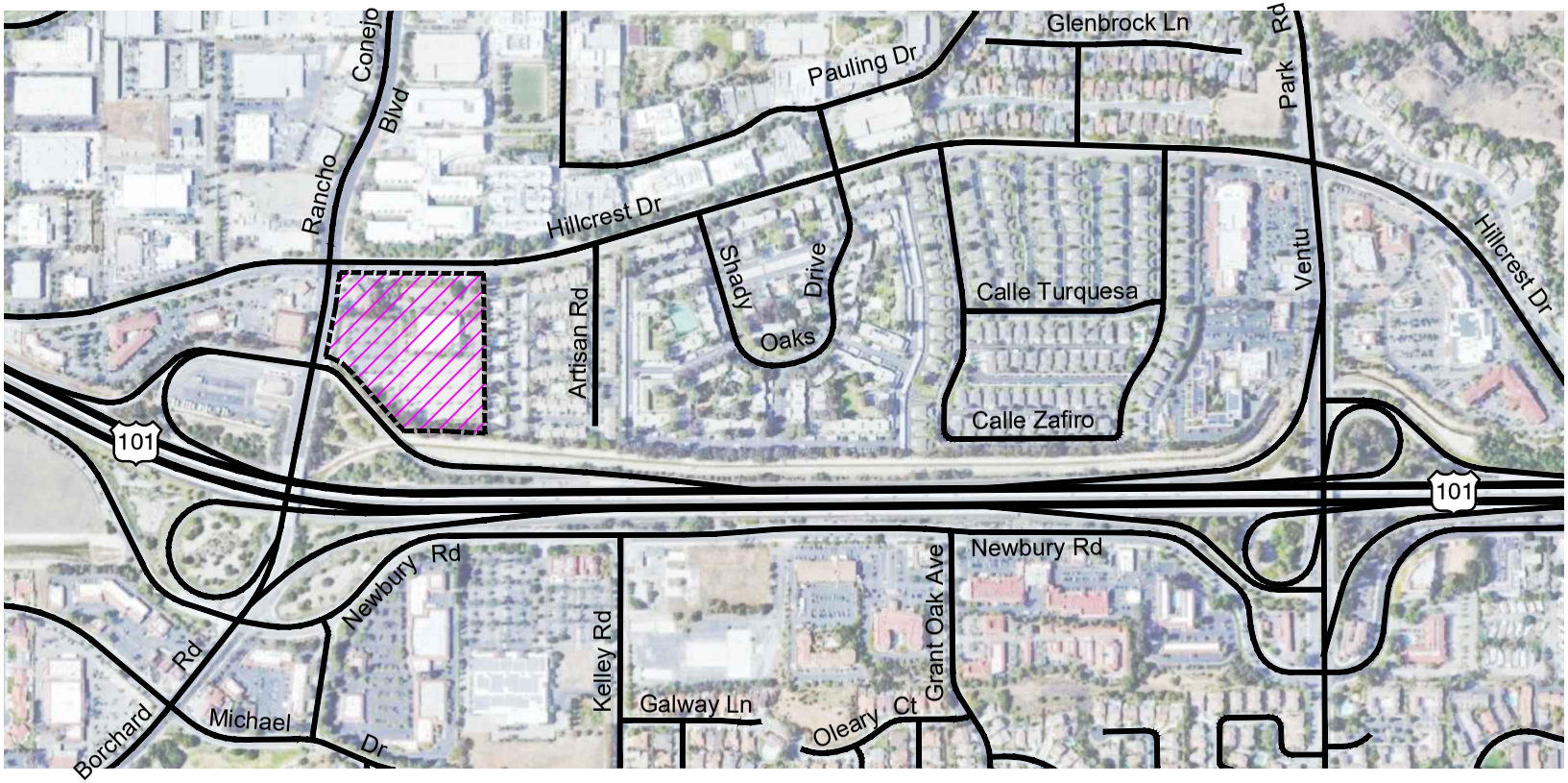
Pursuant to City‘s standard traffic impact study methodology, the traffic analysis includes the following traffic scenarios:

- Existing Conditions
- Existing plus Project Conditions
- Buildout (Year 2040) Conditions
- Buildout plus Project Conditions

Level of Service Criteria

The traffic analysis focuses on four (4) key intersections within the study area during the AM and PM commute periods, when peak traffic volumes occur during a typical weekday. A level of service (LOS) ranking scale is used to identify the operating condition at intersections, which is measured in seconds of delay per vehicle at each intersection during the AM and PM peak hour periods, per the level of service calculation methodologies outlined in the Highway Capacity Manual (HCM)[1]. The letter scale ranges from A to F with LOS A representing free flow conditions and LOS F representing congested conditions. The level of service criteria are summarized in Table 1.

[1] Highway Capacity Manual, 6th Edition: A Guide for Multi-Modal Mobility Analysis, Transportation Research Board, 2016.



LEGEND

Project Site

N

N.T.S.

Stantec

EXHIBIT 1

EXISTING ROADWAY NETWORK
AND PROJECT LOCATION

Stantec

N.T.S.

Stantec

EXHIBIT 2

PROJECT SITE PLAN

Table 1
Intersection Level of Service Criteria (HCM Methodology)

LOS	Signalized Intersections (Sec. of Delay)	Unsignalized Intersections (Sec. of Delay)	Definition
A	≤ 10	≤ 10	Conditions of free unobstructed flow, no delays and all signal phases sufficient in duration to clear all approaching vehicles.
B	> 10 and ≤ 20	> 10 and ≤ 15	Conditions of stable flow, very little delay, a few phases are unable to handle all approaching vehicles.
C	> 20 and ≤ 35	> 15 and ≤ 25	Conditions of stable flow, delays are low to moderate, full use of peak direction signal phases is experienced.
D	> 35 and ≤ 55	> 25 and ≤ 35	Conditions approaching unstable flow, delays are moderate to heavy, significant signal time deficiencies are experienced for short durations during the peak traffic period.
E	> 55 and ≤ 80	> 35 and ≤ 50	Conditions of unstable flow, delays are significant, signal phase timing is generally insufficient, congestion exists for extended duration throughout the peak period.
F	> 80	> 50	Conditions of forced flow, travel speeds are low and volumes are well above capacity. This condition is often caused when vehicles released by an upstream signal are unable to proceed because of back-ups from a downstream signal

Source: Highway Capacity Manual, 6th Edition.

The City of Thousand Oaks considers LOS C or better acceptable for intersection operations, with LOS D acceptable for the Hillcrest Drive/Rancho Conejo Boulevard intersection and specific intersections included in the Thousand Oaks Boulevard Specific Plan. (Source City Council Resolution 2019-011).

Level of Service Calculation Methodology

Levels of service for the intersections in the study area were calculated using the methodologies outlined in the Highway Capacity Manual (HCM) using Synchro[2] software, which uses data input parameters such as peak hour turning volumes, lane configurations, saturation flows and traffic signal timing to calculate intersection levels of service, control delays and queue lengths for each intersection approach. The HCM methodology provides a qualitative measurement of intersection delay in average seconds per vehicle for each approach and for the overall intersection.

EXISTING CONDITIONS

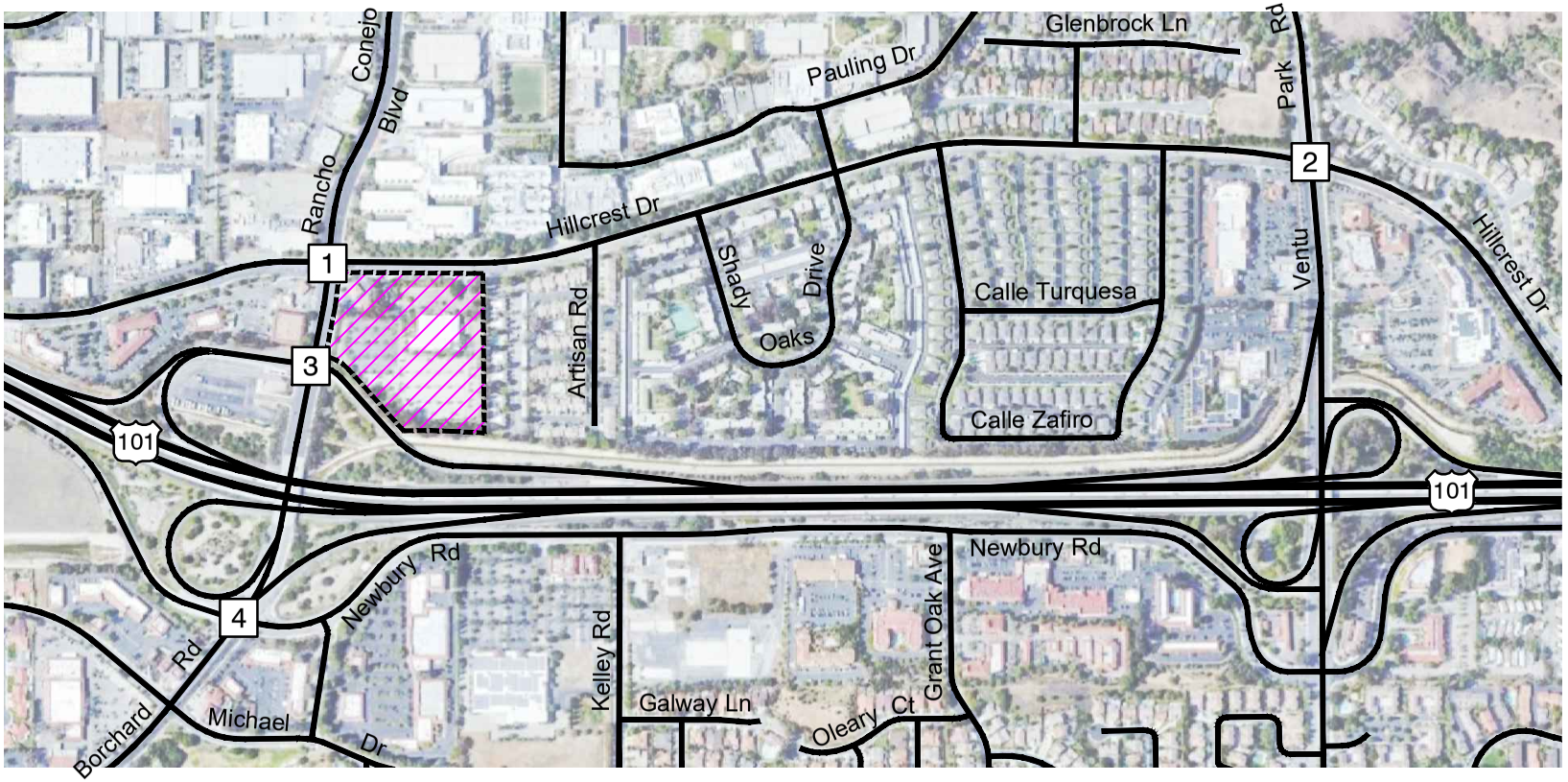
Roadway Network

The roadway system in the study area is comprised of a network of freeways, arterial streets and collector streets. The study area roadway network is shown in Exhibit 3 and a brief description of the key roadways providing access to the project is provided below.

U.S. Highway 101 (U.S. 101) extends along the Central Coast between Los Angeles and San Francisco. Within the City of Thousand Oaks, the six-lane freeway is the principal route between Thousand Oaks and the cities of Camarillo, Ventura and Santa Barbara to the north, and the cities of Calabasas and Los Angeles to the south. Regional access from U.S. 101 to the project site is provided via the interchanges of the U.S. 101 with Rancho Conejo Boulevard - Borchard Road and Ventu Park Road.

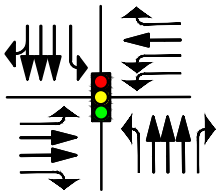
Hillcrest Drive is a four-lane roadway that extends easterly from Camino Dos Rios to Westlake Boulevard It serves the commercial, office and residential areas north of the freeway. The posted speed limit in the study area is 45 mph. The roadway provides direct access to the project site.

[2] Synchro plus SimTraffic 10, Trafficware Ltd., 2018.

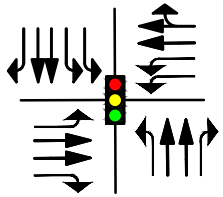


N.T.S.

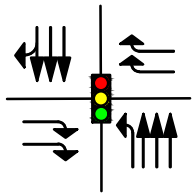
1 Rancho Conejo Blvd & Hillcrest Dr



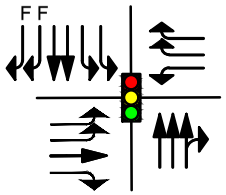
2. Ventu Park Rd & Hillcrest Dr



3. Rancho Conejo Blvd & U.S. 101 NB



4. Borchard Rd & U.S. 101 SB



LEGEND

- Traffic Signal
- Stop Sign
- Approach Lane Assignment

Stantec

EXHIBIT 3
EXISTING INTERSECTION LANE GEOMETRIES

Rancho Conejo Boulevard is a four- to six-lane roadway that extends north from the Newbury Road Connector over the U.S. and ends at Wildwood Park. The posted speed limit is 40 mph.

Borchard Road, extends south of from the Newbury Road Connector as a 4- to 5-lane roadway with a raised median that transitions to a two-way left-turn lane at Carob Drive to Rancho Dos Vientos. The posted speed limit is 40 mph north of Michael Drive and 45 mph south of Michael Drive.

Ventu Park Road extends northerly from Lynn Road over U.S. 101 to Rancho Conejo Boulevard. Within the study area it is a four-lane divided road with a posted speed limit of 40 mph.

Alternative Transportation

The City of Thousand Oaks is served by fixed route buses including local service Thousand Oaks Transit (TOT) and regional services Metro, LA DOT Transit and VCTC Intercity, and senior/ADA Dial a Ride (DAR) services. TOT Bus Route 44 (Crosstown) provides convenient connections to the City's other four local bus routes and service to the project area with stops along Hillcrest Drive. VCTC Intercity routes provide regional transit connections with service to Thousand Oaks, Camarillo and Canoga Park (VCTC 101/Conejo Connection) and service to Simi Valley and Moorpark (VCTC East).

The bicycle network in the study area consists of Class II bicycle lanes that are provided on Hillcrest Drive, along Rancho Conejo Boulevard north of Hillcrest Drive and along Ventu Park Road.

Existing Intersection Operations

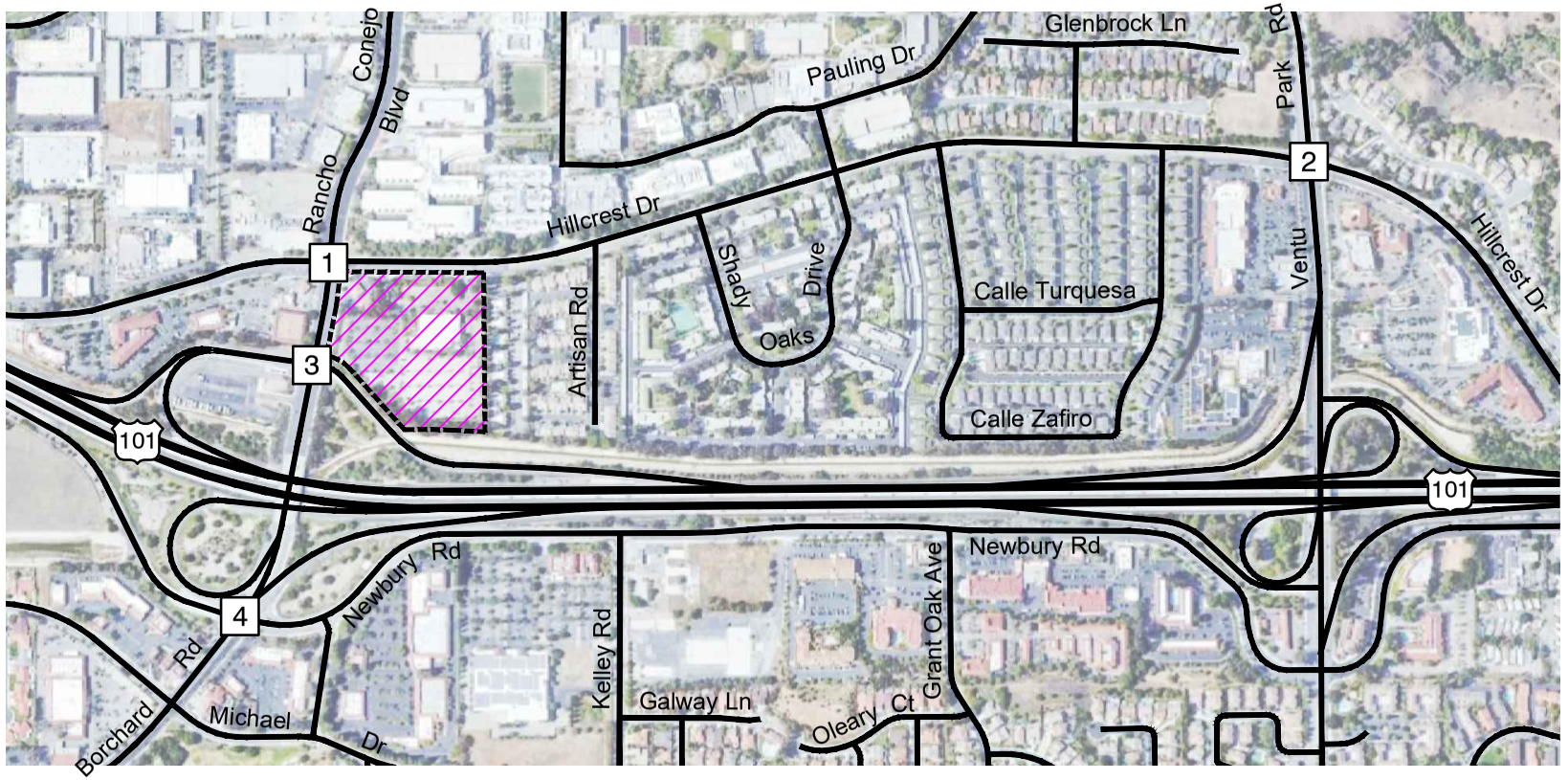
A total of four intersections were selected for analysis in consultation with City of Thousand Oaks staff. Intersection turning volume counts for the AM and PM peak commute periods were provided by City staff. The most recent peak hour turning volumes for the U.S. 101/Rancho Conejo Blvd - Borchard Rd Interchange (March 2022, post-pandemic conditions) were used to adjust the turning volumes for the Hillcrest Dr/Rancho Conejo Blvd intersection (January 2020, pre-pandemic conditions).

The existing lane geometry and control for the intersections within the study area are shown in Exhibit 3 and the Year 2020 AM and PM peak hour volumes are illustrated in Exhibit 4. Levels of service were calculated for the study-area intersections based on the HCM level of service methodology outlined previously. The technical calculation worksheets are included in the Technical Appendix, and the existing intersection levels of service are summarized in Table 2.

Table 2
Existing AM and PM Peak Hour Intersection Levels of Service (HCM Methodology)

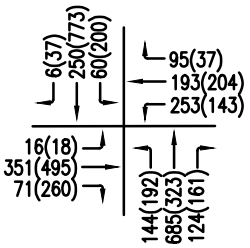
Intersection	Control	AM Peak Hour Delay (sec/veh)	PM Peak Hour Delay (sec/veh)
1. Hillcrest Dr/ Rancho Conejo Blvd	Signal	29.5/LOS C	28.9/LOS C
2. Hillcrest Dr/ Ventu Park Rd	Signal	28.8/LOS C	27.6/LOS C
3. Rancho Conejo Blvd/U.S. 101 NB Ramps	Signal	12.3/LOS B	15.0/LOS B
4. Borchard Rd/U.S. 101 SB Ramps	Signal	21.3/LOS C	21.8/LOS C

As shown, the intersections are currently operating in the LOS B-C range, which is considered acceptable based on the City's level of service standard.

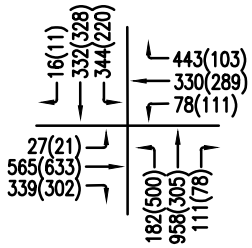


N.T.S.

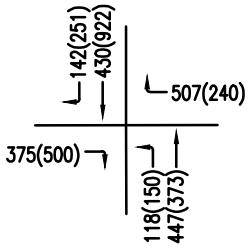
1Rancho Conejo Blvd & Hillcrest Dr



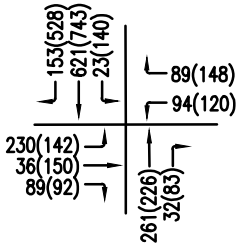
2. Ventu Park Rd & Hillcrest Dr



3. Rancho Conejo Blvd & U.S. 101 NB



4. Borchard Rd & U.S. 101 SB



LEGEND

XX(XX) AM(PM) Peak Hour Volume

Traffic Movement

Stantec

EXHIBIT 4

EXISTING PEAK HOUR TRAFFIC VOLUMES

PROJECT SPECIFIC CONDITIONS

Traffic Impact Thresholds

City of Thousand Oaks. In the study area, the City of Thousand Oaks considers LOS C or better acceptable for intersection operations, with LOS D acceptable for the Hillcrest Drive/Rancho Conejo Boulevard intersection. A significant impact would occur if a project causes a drop in level of service by one service level in the "plus project" traffic scenario, and feasible mitigation measures would be required to return the intersection back to its pre-project operating condition.

Caltrans. Caltrans considers the cusp of LOS/D acceptable for State facilities. It is noted that Caltrans has transitioned away from requesting LOS or other vehicle operations analyses for land use projects (other than transportation projects on the State Highway System).

Project Trip Generation and Distribution

Trip Generation Rates. Stantec reviewed applicable land uses contained in the ITE *Trip Generation Manual (11th Edition, 2022)*. ITE Land Use 221 – Multifamily Housing (Mid-Rise) and Land Use 822 – Strip Retail Plaza (<40k) were determined to fit the project description. Table 3 shows the ITE trip rates.

Table 3
Project Trip Generation Rates

Land Use	ITE Land Use Code	Units	Trip Rate				
				AM		PM	
			ADT	In	Out	In	Out
Multifamily Housing (Mid-Rise)	221	DU	4.54	0.09	0.28	0.24	0.15
Strip Retail Plaza (<40k)	822	KSF	54.45	1.42	0.94	4.85[1]	4.84[1]

DU = dwelling units.
KSF = 1,000 square feet.
[1] Fitted curve equation applied pursuant ITE tripe generation rate guidelines.

Internal Trip Capture. The trip generation rates for the land uses listed above assume that each project component is a stand-alone land use. Due to the mix of land uses a portion of the trips generated by the project would remain internal to the site and not enter the external roadway network. These trips between residential and commercial uses are captured between land uses on the site. ITE's *Trip Generation Handbook (3rd Edition, 2017)* defines a multi-use development as a "real estate project that consists of two or more ITE land use classifications between which trips are made without using the off-site road system." The project's internal trips were determined based on the internal trip capture percentages contained in Tables 6.1 and 6.2 of the Trip Generation Handbook.

Project Trip Generation. Table 4 summarizes the trip generation estimates for the proposed project with an mixed use internal trip capture component applied. As shown, the project is expected to generate 1,788 average daily trips, with 136 trips occurring in the AM peak hour and 182 trips occurring in the PM peak hour.

Table 4
Project Trip Generation

Land Use	Size	ADT	AM			PM		
			In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise)	333 DU	1,512	30	93	123	80	50	130
Strip Retail Plaza (<40k)	6.5 KSF	354	9	6	15	32	31	63
Total		1,866	39	99	138	112	81	193
Mixed-Use (Internal Trips)		78	0	2	2	6	5	11
TOTAL		**1,788**	**39**	**97**	**136**	**106**	**76**	**182**

Project Trip Distribution. Trip distribution percentages were developed based on existing traffic patterns and general understanding of destinations in the area. While trip distribution for the residential and retail components of the project could slightly vary, it was assumed, based on the project site location and proximity to U.S. 101, that trip distribution variations would not be significant. The project trip distribution percentages are shown in Table 5 and Exhibit 5, and the project-added traffic volumes are shown in Exhibit 6.

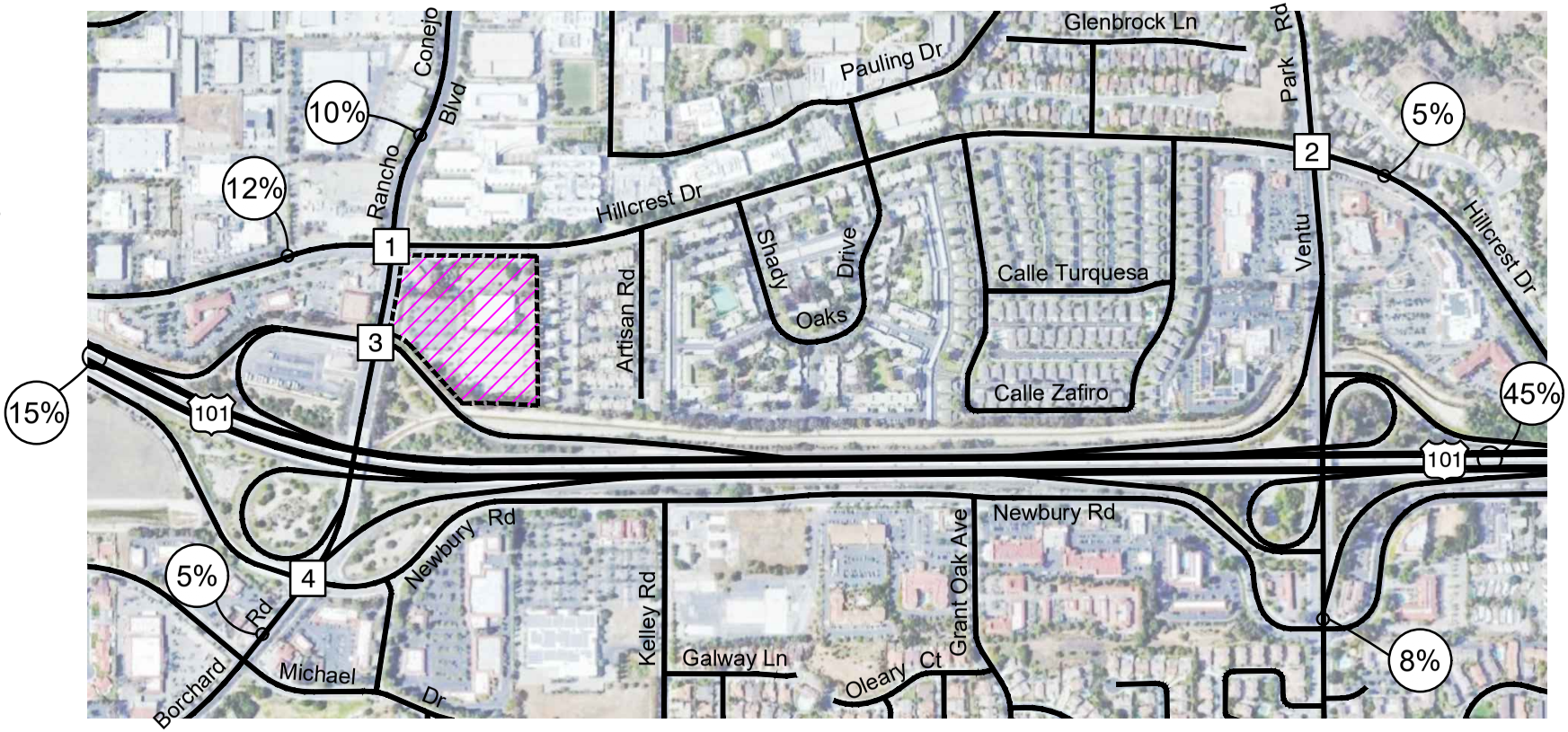
Table 5
Project Trip Distribution Percentages

Origin/Destination	Direction	Distribution Percentage
U.S. 101	Northwest	15%
	Southeast	45%
Hillcrest Drive	East	5%
	West	12%
Rancho Conejo Boulevard	North	10%
Borchard Road	South	5%
Ventu Park Road/Newbury Road	South	8%
Total		**100**%

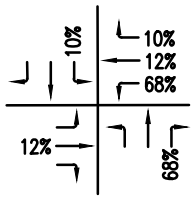
Existing plus Project Intersection Operations

Project generated traffic was added to the existing peak hour traffic volumes and levels of service were recalculated for existing plus project conditions. The existing plus project traffic volumes are illustrated in Exhibit 7. Tables 6 summarizes the level of service calculations for project-specific conditions. As shown, all study area intersections are expected to continue to operate at LOS C or better during both the AM and PM peak hours. The project trip additions are not expected to generate any project-specific impacts at the study area intersections.

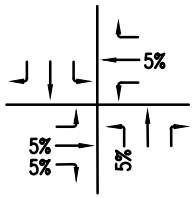
N.T.S.



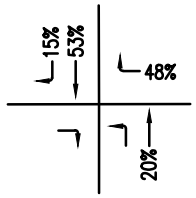
1Rancho Conejo Blvd & Hillcrest Dr



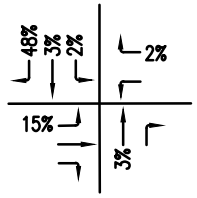
2. Ventu Park Rd & Hillcrest Dr



3. Rancho Conejo Blvd & U.S. 101 NB



4. Borchard Rd & U.S. 101 SB



LEGEND

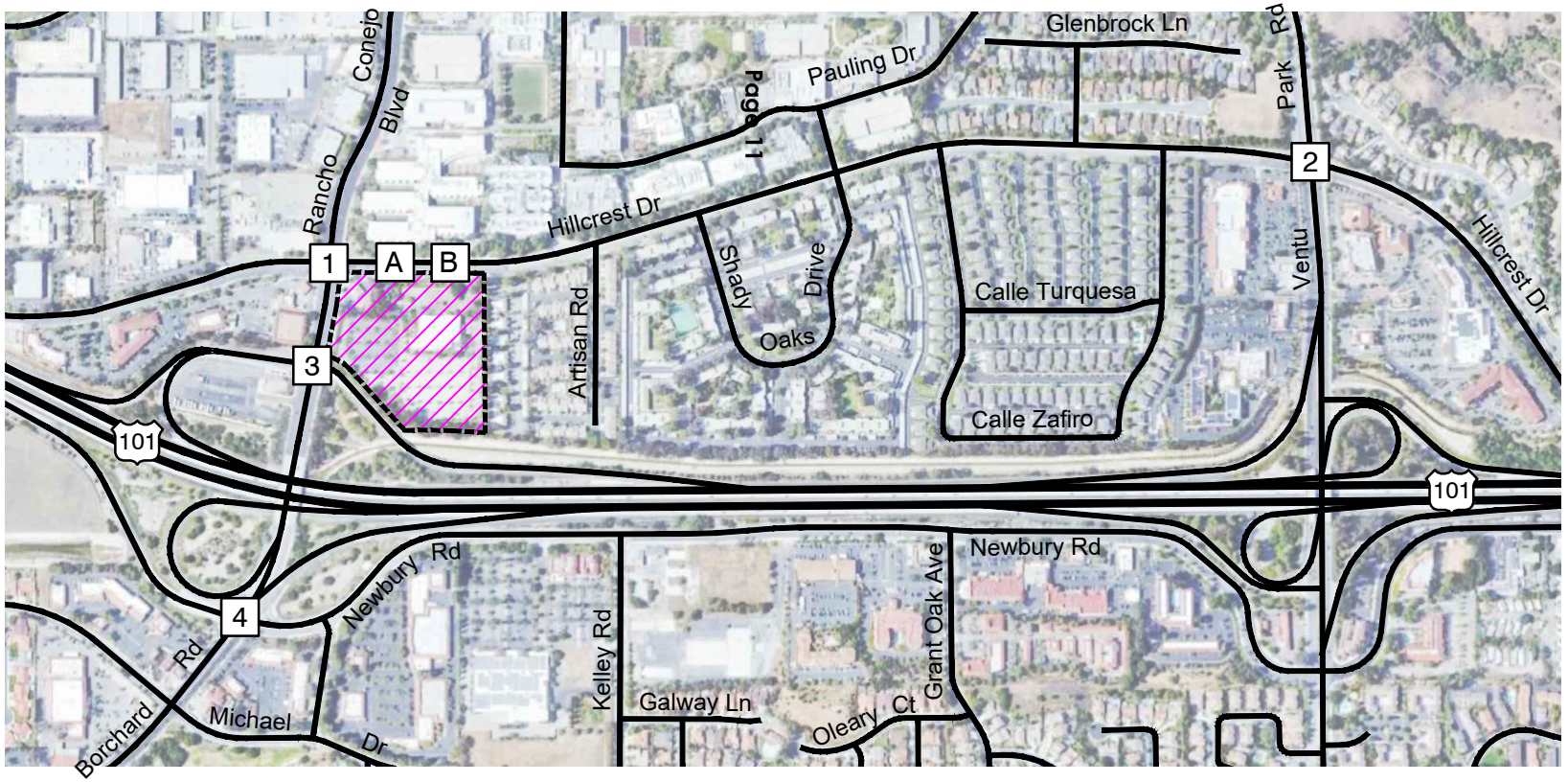
40% - Trip Distribution Percentage

6% Project Trip Distribution

Stantec

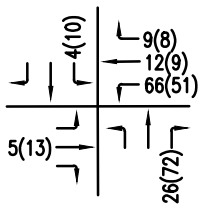
EXHIBIT 5

PROJECT TRIP DISTRIBUTION

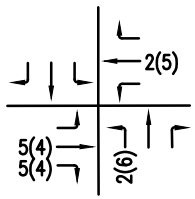


N.T.S.

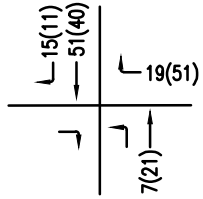
1. Rancho Conejo Blvd & Hillcrest Dr



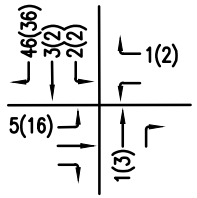
2. Ventu Park Rd & Hillcrest Dr



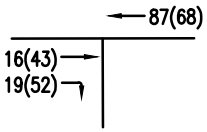
3. Rancho Conejo Blvd & U.S. 101 NB



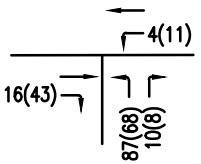
4. Borchard Rd & U.S. 101 SB



A. Hillcrest Dr & W. Project Dway



B. Hillcrest Dr & E. Project Dway



PROJECT TRIP GENERATION

	In	Out	Total
AM PEAK HOUR	39	97	136
PM PEAK HOUR	106	76	182

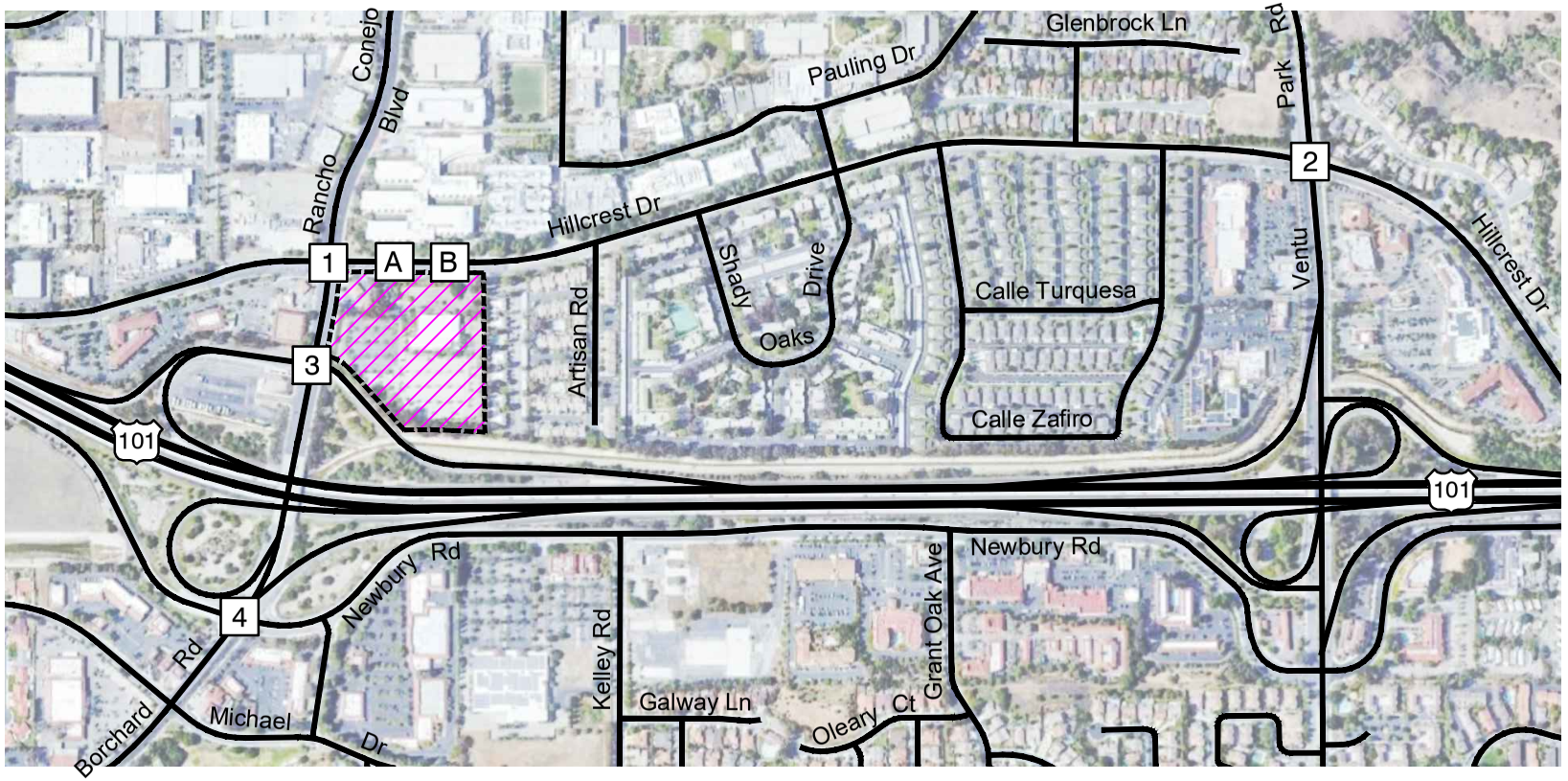
LEGEND

XX(XX) - AM(PM) Peak Hour Volume

- Traffic Movement

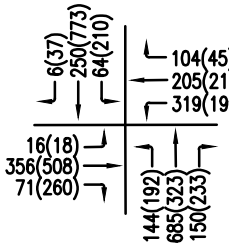
Stantec

EXHIBIT 6
PROJECT-ADDED PEAK HOUR TRAFFIC VOLUMES

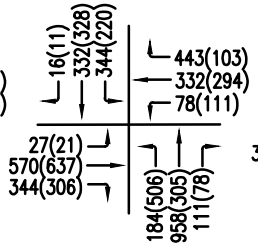


N.T.S.

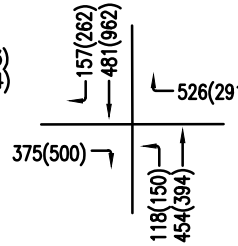
1Rancho Conejo Blvd & Hillcrest Dr



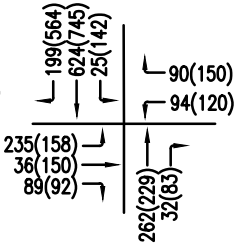
2. Ventu Park Rd & Hillcrest Dr



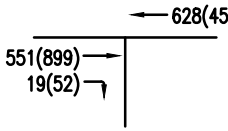
3. Rancho Conejo Blvd & U.S. 101 NB



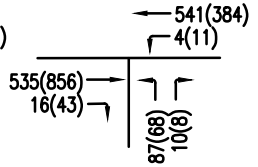
4. Borchard Rd & U.S. 101 SB



A. Hillcrest Dr & W. Project Dway



B. Hillcrest Dr & E. Project Dway



LEGEND

XX(XX) AM(PM) Peak Hour Volume

Traffic Movement

Stantec

EXHIBIT 7

EXISTING + PROJECT PEAK HOUR TRAFFIC VOLUMES

Table 6
Existing + Project AM and PM Peak Hour Intersection Levels of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Existing Delay (sec/veh)	Ex + Project Delay (sec/veh)	Existing Delay (sec/veh)	Ex + Project Delay (sec/veh)
1. Hillcrest Dr/ Rancho Conejo Blvd	29.5/LOS C	30.2/LOS C	28.9/LOS C	29.7/LOS C
2. Hillcrest Dr/ Ventu Park Rd	28.8/LOS C	28.9/LOS C	27.8/LOS C	27.8/LOS C
3. Rancho Conejo Blvd/U.S. 101 NB Ramps	12.3/LOS B	12.3/LOS B	15.0/LOS B	15.0/LOS B
4. Borchard Rd/U.S. 101 SB Ramps	21.3/LOS C	21.4/LOS C	21.8/LOS C	22.0/LOS C

BUILDOUT (YEAR 2040) CONDITIONS

Buildout Traffic Forecasts

General Plan buildout traffic volumes for the study area intersections were developed based on traffic data provided in the *Traffic Impact Mitigation Fee Nexus Study (TIMF)*[3]. The traffic analysis contained in the TIMF applies a 0.376 percent annual traffic volume growth from existing conditions to the Year 2040, for a total increase of 6.8 percent from the year 2022 to the Year 2040. This growth factor was applied to the study area intersections to the Year 2040 to develop buildout traffic volumes. The buildout traffic volumes are illustrated in Exhibit 8,

Street Network Improvements

Review of the City's Five-Year Capital Improvement Program[4] indicates that Transportation/Traffic Project CI5657 includes bicycle and pedestrian improvements to Ventu Park Road from Hillcrest Drive to Michael Drive.

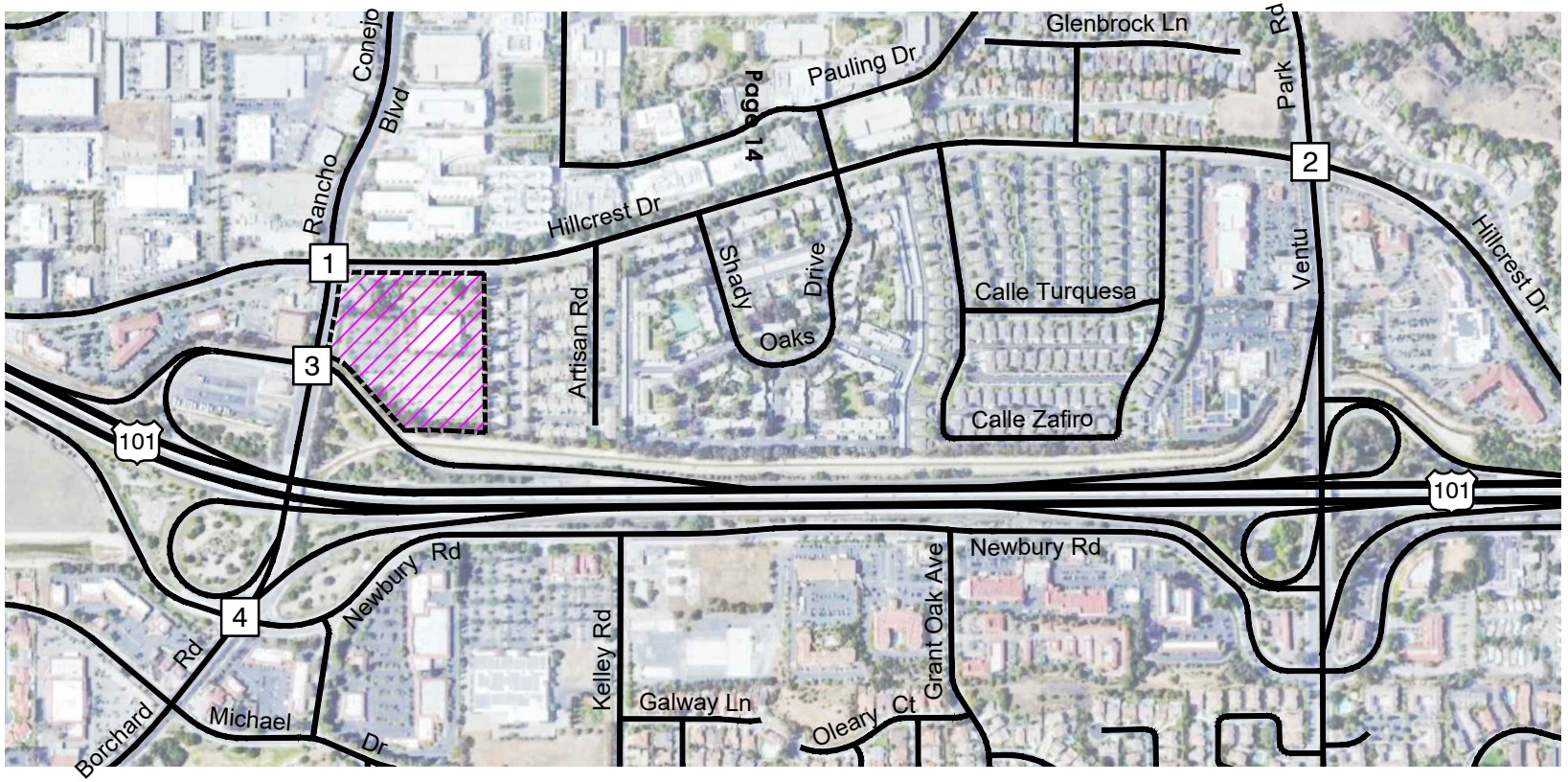
The TIMF includes the following future improvement for the Hillcrest Drive/Ventu Park Road intersection: Restripe southbound approach for three through lanes (through, through, through/right), this will require modifications downstream. Partial improvement, does not improve LOS to City standard. The intersection capacity improvements are not assumed to be in place in the following buildout conditions analysis.

Buildout plus Project Intersection Operations

The buildout plus project traffic volumes are illustrated in Exhibit 9, respectively. Intersection levels of service were recalculated assuming buildout and buildout plus project conditions. Tables 8 and 9 summarize the buildout and buildout plus project level of service calculations.

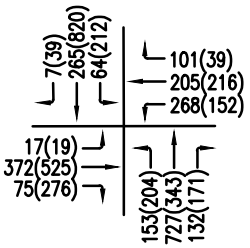
The level of service data contained in Table 7 indicates that all study area intersections are expected to continue to operate at LOS C or better during both the AM and PM peak hours under buildout conditions. The project trip additions are not expected to generate any buildout impacts at the study area intersections.

[3] Traffic Impact Mitigation Fee Nexus Study, City of Thousand Oaks, Final April 2019.
[4] City of Thousand Oaks Adopted Capital Improvement Project Budget, Fiscal Years 2021-2022 & 2022-2023, City of Thousand Oaks, 2020.

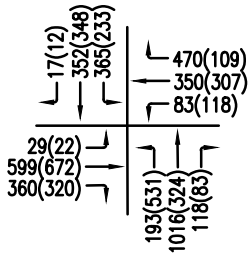


N.T.S.

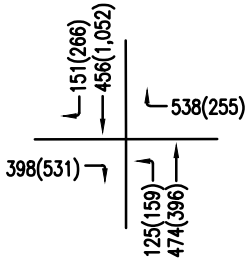
1. Rancho Conejo Blvd & Hillcrest Dr



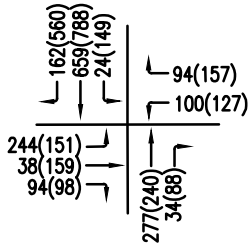
2. Ventu Park Rd & Hillcrest Dr



3. Rancho Conejo Blvd & U.S. 101 NB



4. Borchard Rd & U.S. 101 SB



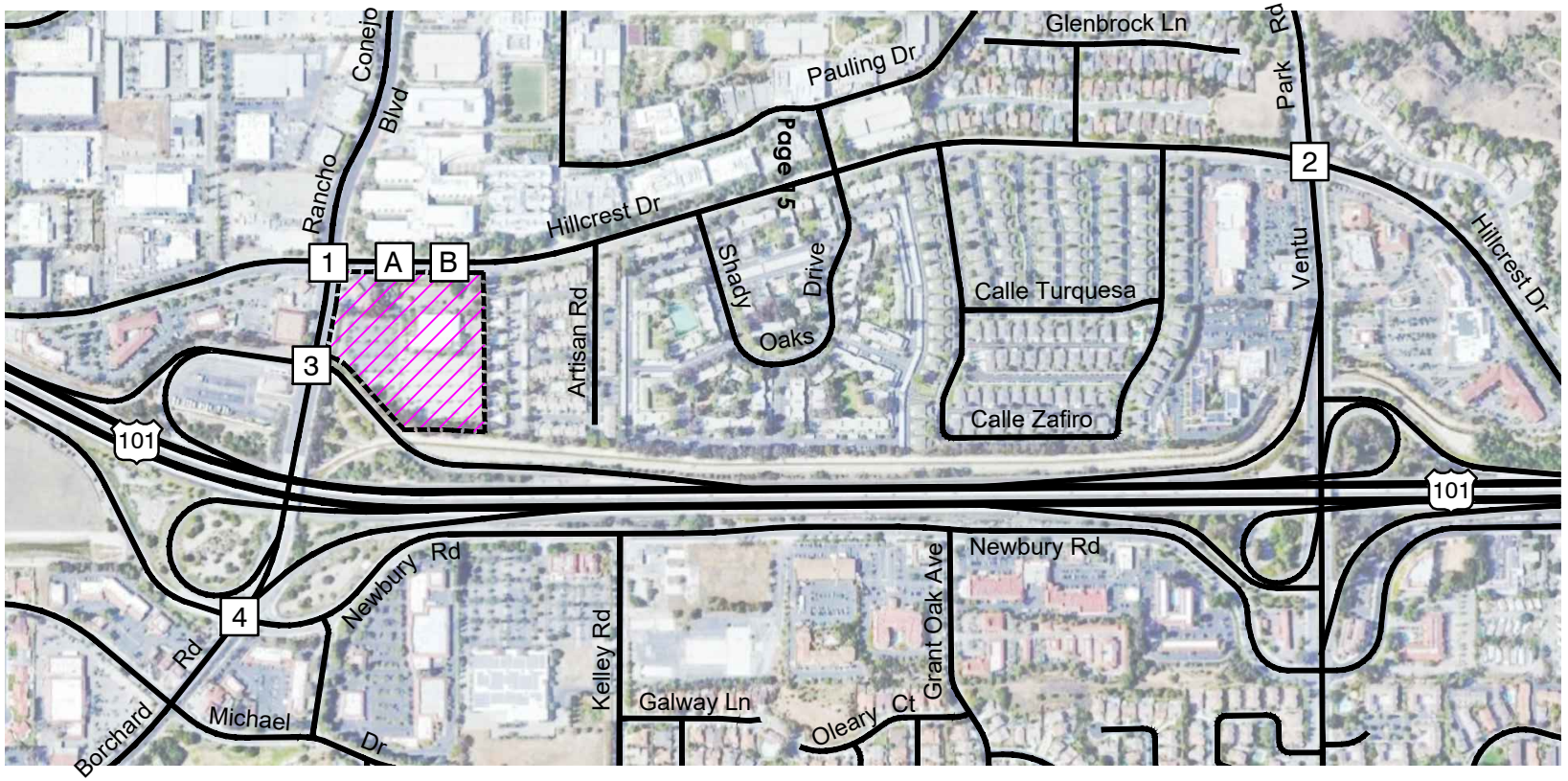
LEGEND

XX(XX) - AM(PM) Peak Hour Volume

- Traffic Movement

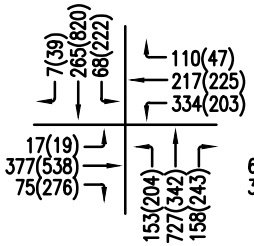
Stantec

EXHIBIT 8
BUILDOUT PEAK HOUR TRAFFIC VOLUMES

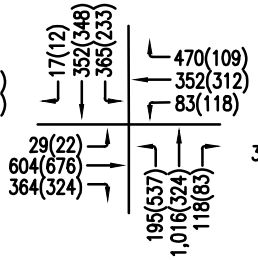


N.T.S.

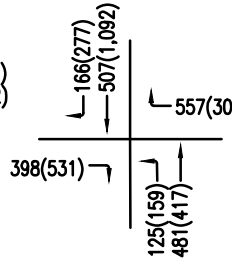
1. Rancho Conejo Blvd & Hillcrest Dr



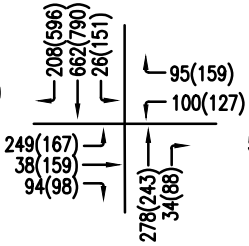
2. Ventu Park Rd & Hillcrest Dr



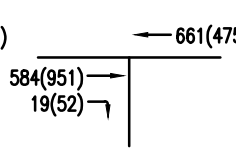
3. Rancho Conejo Blvd & U.S. 101 NB



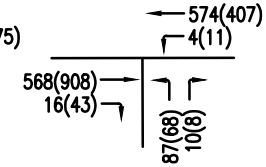
4. Borchard Rd & U.S. 101 SB



A. Hillcrest Dr & W. Project Dway



B. Hillcrest Dr & E. Project Dway



LEGEND

XX(XX) - AM(PM) Peak Hour Volume

- Traffic Movement

Stantec

EXHIBIT 9

BUILDOUT + PROJECT PEAK HOUR TRAFFIC VOLUMES

Table 7
Buildout + Project AM and PM Peak Hour Intersection Levels of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Buildout Delay (sec/veh)	BO + Project Delay (sec/veh)	Buildout Delay (sec/veh)	BO + Project Delay (sec/veh)
1. Hillcrest Dr/ Rancho Conejo Blvd	29.7/LOS C	30.5/LOS C	29.5/LOS C	30.4/LOS C
2. Hillcrest Dr/ Ventu Park Rd	31.4/LOS C	31.5/LOS C	29.4/LOS C	29.6/LOS C
3. Rancho Conejo Blvd/U.S. 101 NB Ramps	12.7/LOS B	12.8/LOS B	15.9/LOS B	16.0/LOS B
4. Borchard Rd/U.S. 101 SB Ramps	21.6/LOS C	21.7/LOS C	22.1/LOS C	22.3/LOS C

PROJECT SITE ACCESS, CIRCULATION AND PARKING

Site Access and Circulation

Site Access. The site plan illustrated in Exhibit 2 shows that access is proposed via two new driveways on Hillcrest Drive. The western driveway accommodates full inbound access (left-turn and right-turn ingress movements). However, outbound access is restricted to right-turn egress movements only (no left-turn egress movements permitted). The western driveway is 24 feet wide and assumed to have one ingress lane and one right-turn only egress lane. The driveway will be controlled by a stop sign. The eastern driveway is 30 feet wide and assumed to have one ingress lane and one shared left/right-turn egress lane. The driveway is full access and will be controlled by a stop sign. Hillcrest Drive has two travel lanes a two-way left-turn lane that allows for westbound left-turns from Hillcrest Drive and two-step left-turn egress from the project driveway, thereby minimizing delays and vehicle conflicts.

Operations at the project driveways were analyzed. The eastbound driveway is full access and is expected to experience higher delay than the western driveway, which restricts vehicles to right-turn egress movements only. To provide a conservative estimate of delay, all egress movements were assumed to utilize the eastbound driveway. Accordingly, the eastbound driveway was analyzed to carry 20 inbound and 97 outbound trips during the AM peak hour and 54 inbound and 76 outbound trips during the PM peak hour Delays were calculated for the intersection using HCS software for stop controlled intersections, which implements the methodologies outlined in the Highway Capacity Manual. The calculation results are summarized in Table 8. As shown, Hillcrest Dr/Project Dwy intersection would operate acceptably with minimal delay (19.2 seconds per vehicle or less).

Table 8
AM and PM Peak Hour Project Driveway Levels of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Ex + Project Delay (sec/veh)	BO + Project Delay (sec/veh)	Ex + Project Delay (sec/veh)	BO + Project Delay (sec/veh)
B. Hillcrest Dr/Project Dwy	14.1/LOS B	14.5/LOS B	18.1/LOS C	19.2/LOS C

Delay noted is for approach with highest delay (project dwy).

Sight distance requirements for vehicles on both driveways should be verified as part of driveway design to confirm that adequate sight lines are provided to approaching traffic on Hillcrest Drive.

Bicycle and pedestrian access is provided via the two project driveways. Hillcrest Drive has Class II bicycle lanes and sidewalks adjacent to the project site, which connect to the local bike and pedestrian network.

Circulation. The on-site circulation system is comprised of several connected driveways that provide access to both the residential areas and the retail parking areas. Driveways will be constructed pursuant City road design standards and should be designed to accommodate the expected design vehicle; moving trucks and fire truck for the residential areas, and delivery trucks and fire truck for the retail.

Parking

The proposed parking supply consists of 581 parking spaces. The parking requirement for the residential component are pursuant the City Municipal Code (Title 9, Chapter 4, Article 24-Off-Street Parking), except for the exclusion of guest parking as permitted by State Density Bonus Law. Parking requirements for the commercial component are to conform with the *Hillcrest Specific Plan (SP No. 24)*, which includes 1 parking space per 200 square feet of gross leasable area for the first 2,000 square feet of gross leasable area and 1 parking space per 100 square feet of gross leasable area over 2,000 square feet. Table 9 summarizes the project's parking requirements.

Table 9
Parking Requirements

Project Component	Size	Parking Requirement	Parking Required	Parking Provided
Residential				
One-bedroom units	180 DU	1 space/unit	180 spaces	486 spaces
Two-bedroom units	125 DU	2 spaces/unit [a]	250 spaces	
Three-bedroom units	28 DU	2 spaces/unit [a]	56 spaces	
Total Residential	**333 DU**		**486 spaces**	**486 spaces**
Commercial				
First 2,000 SF	2,000 SF	1 space/200 SF	10 spaces	43 spaces
> 2,000 SF	3,300 SF	1 space/100 SF [b]	33 spaces	
Total Commercial	**5,300 SF**		**43 spaces**	**43 spaces**
Surplus (General)			**-**	**52 spaces**
TOTAL			**529 spaces**	**581 spaces**

DU = dwelling unit.
SF = square feet.
[a] 1.5 space/unit allowed by State density bonus law and Thousand Oaks Municipal Code; applicant is providing 2 spaces/unit.
[b] Parking rate assumes entire square footage of commercial area is restaurant rather than a mix of retail and restaurant space to provide a conservative calculation.

As shown, the parking requirement is 529 spaces. The proposed parking supply of 581 spaces would be sufficient to accommodate the parking requirement.

VEHICLE MILES TRAVELED (VMT) ANALYSIS

State Senate Bill 743 (2013), which was codified in Public Resources Code section 21099, required changes to the guidelines implementing CEQA (CEQA Guidelines) (Cal. Code Regs., Title 14, Div. 6, Ch. 3, § 15000 et seq.) regarding the analysis of transportation impacts. Pursuant to Section 21099, the criteria for determining the significance of transportation impacts must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of

land uses." (*Id.*, subd. (b)(1); see generally, adopted CEQA Guidelines, §15064.3, subd. (b) [Criteria for Analyzing Transportation Impacts].) To that end, in developing the criteria, Office of Planning and Research (OPR) has proposed, and the California Natural Resources Agency (Agency) has certified and adopted, changes to the CEQA Guidelines that identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts.

A project would have a significant effect on the environment if it would cause substantial additional VMT. The OPR *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018) recommends screening criteria to identify types, characteristics, or locations of projects that would not result in significant impacts to VMT. If a project meets screening criteria, then it is presumed that VMT impacts would be less than significant for the project and a detailed VMT analysis is not required.

Screening Criteria

The City utilizes a screening criteria in order to provide CEQA relief to projects that support the State's GHG emission goals, and those projects are presumed as less than significant. The proposed project does not meet any of the screening criteria, thus is required to undergo a CEQA Transportation Assessment.

Thresholds of Significance

The City has adopted an administrative policy stating that thresholds of significance will be determined on a case by case basis. For the purposes of this project, the thresholds of significance will be as follows:

- A significant impact would occur if the VMT per capita or VMT per employee exceeds the citywide average VMT per capita or per employee of the baseline.

VMT Analysis Summary

The Draft VMT analysis prepared by Iteris Inc. is presented in Technical Appendix 1 of this report. Table 10 summarizes the VMT analysis results.

Table 10
VMT Analysis Summary

Project Component	VMT Calculation Methodology	Citywide Average Daily VMT	Project TAZ Daily VMT
Residential	City-wide average daily VMT per resident	15.32 VMT	10.31 VMT
Commercial	City-wide average daily VMT per employee	22.51 VMT	18.49 VMT

The project TAZ's daily residential VMT per capita is approximately 32% less than the Citywide average daily residential VMT per capita. The project TAZ's daily employment VMT per employee is approximately 18% less than the Citywide average daily employment VMT per employee. Neither the project's estimated residential VMT per capita nor commercial VMT per employee exceed the respective Citywide averages (for these metrics). Based on the described thresholds of significance, the proposed project would not result in a significant transportation impact under *CEQA Checklist XVII. Transportation b): "Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)—the criteria for analyzing transportation impacts for land use projects: vehicle miles traveled exceeding an applicable threshold of significance?"*

MITIGATION MEASURES

Project-Specific Mitigations

The project-specific analysis found that the project would not generate project-specific impacts at the study area intersection based on City of Thousand Oaks impact thresholds. No project-specific mitigations are therefore required.

The project site access discussion indicated that the project access driveway connections with Hillcrest Drive are expected to operate acceptably with low delays. Corner sight distance requirements should be evaluated at both driveways to ensure adequate sight lines are provided.

The parking requirement for the project, based on City Code is 529 spaces. The proposed parking supply of 581 spaces would be sufficient to accommodate the parking requirement.

Buildout Mitigations

The buildout analysis indicated that the project would not generate buildout impacts at the study area intersection based on City of Thousand Oaks impact thresholds. The project will be required to pay Traffic Mitigation Fees to mitigate its cumulative impacts.

■ ■ ■

TECHNICAL APPENDIX

TABLE OF CONTENTS

Appendix 1

Draft CEQA Transportation Analysis Memorandum (Iteris Inc.)

213.488.0345
iteris.com

801 South Grand Avenue, Suite 750
Los Angeles, CA 90017

TECHNICAL MEMORANDUM

To:	Dennis Lammers Stantec 200 East Carrillo Street, Suite 101 Santa Barbara, CA 93101	**From:**	Jennifer Emerson-Martin, PE Iteris, Inc. 801 South Grand Avenue, Suite 750 Los Angeles, CA 90017
Date:	October 27, 2022		
RE:	2150 W. Hillcrest Drive – CEQA Transportation Analysis		

INTRODUCTION

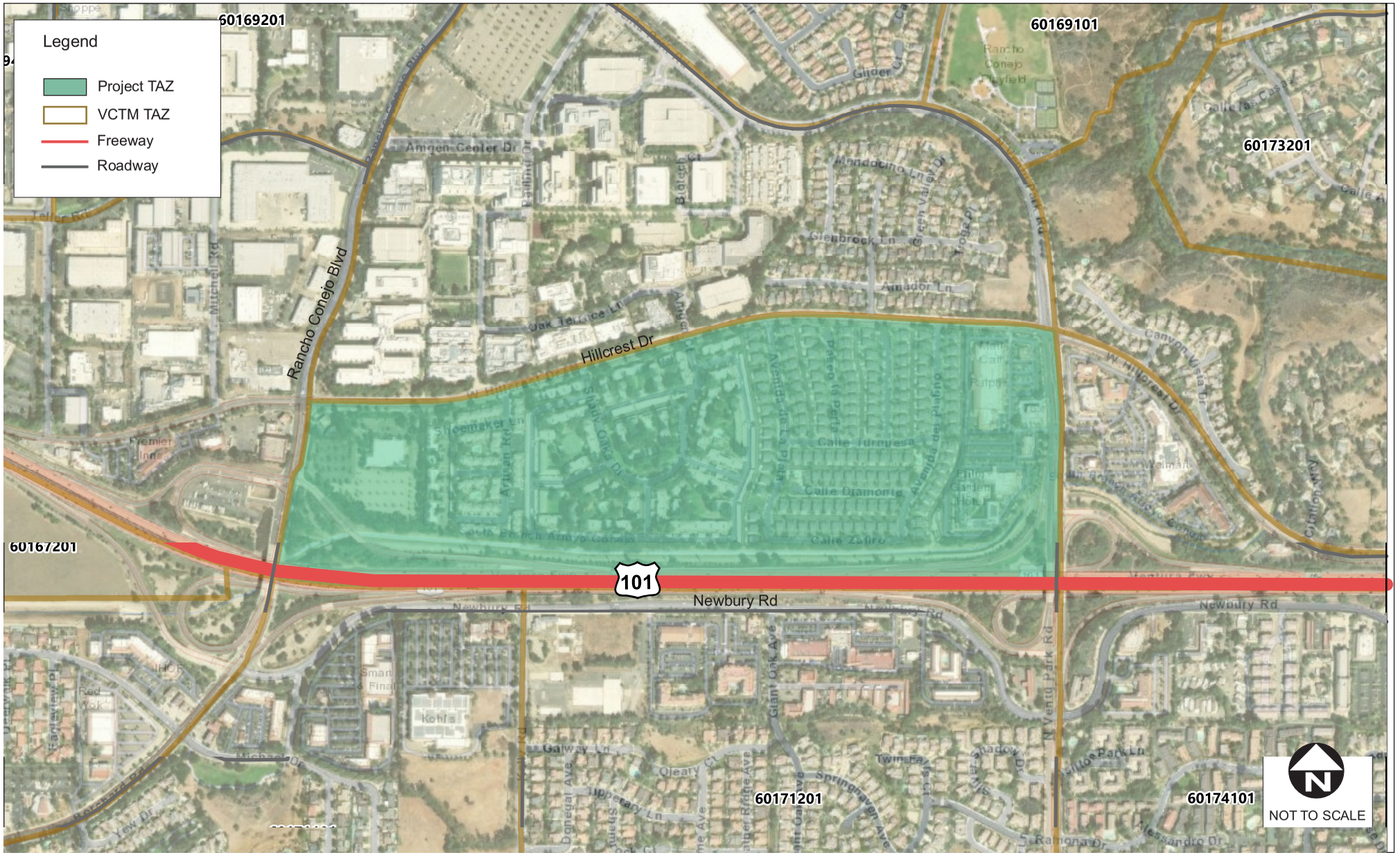
This memorandum presents Iteris' California Environmental Quality Act (CEQA) analysis of the potential development at 2150 W. Hillcrest Drive in the City of Thousand Oaks. The development consists of the demolition of a vacant 51,000 square foot office building, construction of 333 multi-family units, and 6,500 square feet of ground-floor commercial space. The development site is located at the southeastern corner of the intersection of Rancho Conejo Boulevard and Hillcrest Drive.

CEQA analysis for determining potential significant transportation impacts from vehicles transitioned in 2020 from an automobile delay or capacity measure to a Vehicle Miles Traveled (VMT) metric as required by Senate Bill (SB) 743. VMT is an area-wide performance measure which helps compare the overall performance of a development and is also used as a metric to ultimately assess the transportation environmental impacts. VMT is generally calculated using a travel demand model that captures the movement of all trips over a highway network. For this analysis, the time period was defined as a 24-hour period on a typical weekday.

METHODOLOGY

Iteris utilized the Ventura County Transportation Model (VCTM) to generate VMT statistics, following the City's administrative policy on CEQA transportation analysis. This land use based model, which is a subarea model of the Southern California Association of Government's (SCAG) travel demand model, is consistent with the 2016 SCAG RTP/SCS travel-demand model assumptions and inputs. The model consists of a 2016 base year scenario and 2040 future year scenario. For the purposes of this analysis, the 2016 base year scenario was utilized. It should be noted the 2016 base year is the regionwide standard for existing and baseline conditions analysis.

The VCTM consists of a detailed traffic analysis zone (TAZ) structure in the City of Thousand Oaks. The model consists of 110 TAZ's within the City. **Figure 1** illustrates the location of the proposed development's TAZ (60172301) in relation to the region.



2150 W. Hillcrest Drive
VMT Analysis
City of Thousand Oaks

Figure 1
Project Location and Transportation Analysis Zones (TAZ)

VMT ANALYSIS

This section describes the potential screening, thresholds of significance, and VMT impact evaluation for the proposed development.

Screening Criteria

The City utilizes a screening criteria in order to provide CEQA relief to projects that support the State's GHG emission goals, and those projects are presumed as less than significant. The proposed project does not meet any of the screening criteria, thus is required to undergo a CEQA Transportation Assessment.

Thresholds of Significance

The City has adopted an administrative policy stating that thresholds of significance will be determined on a case-by-case basis. For the purposes of this project, the thresholds of significance will be as follows:

- A significant impact would occur if the VMT per capita or VMT per employee exceeds the citywide average VMT per capita or per employee of the baseline.

VMT Impact Evaluation

The proposed project consists of commercial and residential use, thus the VMT will be reported as Work-Based VMT per Employee and Home-Based VMT per Resident calculated as such:

$$WorkBased\ VMT\ per\ Employee = \frac{Total\ WorkBased\ VMT}{Total\ Number\ of\ Employees}$$

$$HomeBased\ VMT\ per\ Resident = \frac{Total\ HomeBased\ VMT}{Total\ Number\ of\ Residents}$$

To determine the project's potential level of impact, a new VCTM scenario including the proposed project land use within TAZ 60172301 was prepared, utilizing the existing year (2016) of the model. From this new model scenario output, the following two metrics will be used for significant impact determination:

- Project TAZ daily residential VMT per capita;
- Citywide daily residential VMT per capita;
- Project TAZ daily employment VMT per employee;
- Citywide daily employment VMT per employee.

The new VCTM scenario resulted in the following outputs:

- The City-wide average daily VMT per resident, for use within this analysis only, is **15.32**; and
- TAZ-level daily VMT per resident is **10.31**.
- The City-wide average daily VMT per employee, for use within this analysis only, is **22.51**; and
- TAZ-level daily VMT per employee is **18.49**.

The project TAZ's daily residential VMT per capita is approximately 32% less than the Citywide average daily residential VMT per capita. The project TAZ's daily employment VMT per employee is approximately 18% less than the Citywide average daily employment VMT per employee. Neither the project's estimated residential VMT per capita nor commercial VMT per employee exceed the respective Citywide averages (for these metrics). Thus, the proposed project is not forecast to result in a significant transportation impact.

Conclusion

The development consists of the demolition of a vacant 51,000 square foot office building, construction of 333 multi-family units, and 6,500 square feet of ground-floor commercial space.

The project does not meet any CEQA transportation screening criteria, thus a CEQA Transportation Assessment was required. Based on the described thresholds of significance, the proposed project would not result in a significant transportation impact under CEQA Checklist XVII. Transportation b):

> *"Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3 subdivision (b)—the criteria for analyzing transportation impacts for land use projects: vehicle miles traveled exceeding an applicable threshold of significance?"*

Appendix 2

AM and PM Peak Hour Intersection Counts

M Y

DATE: 1 2020

LOCATION: Hillcrest Dr @ Rancho Conejo

TAKEN BY: Bradley & Robert

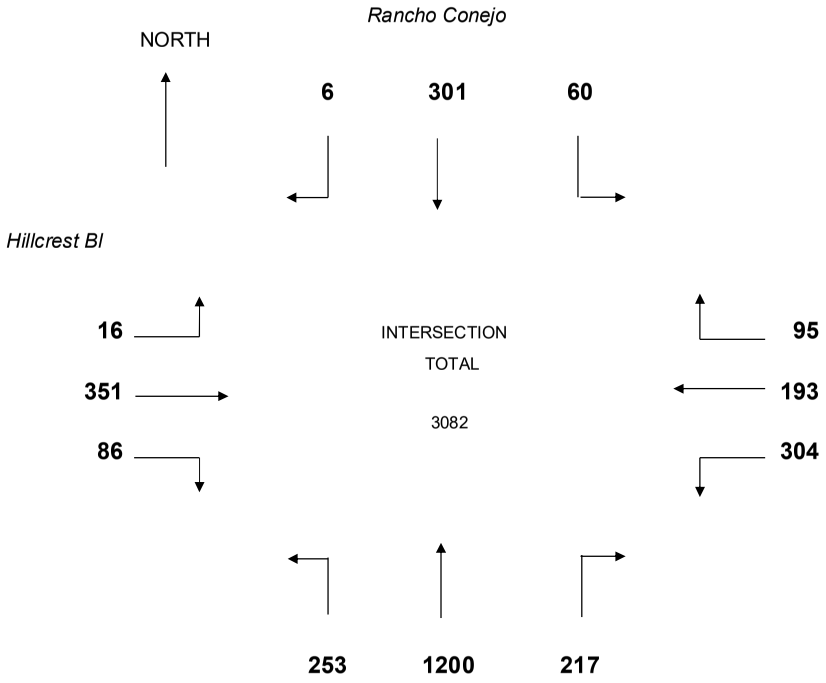
PEAK HOUR: 7:15 - 8:15

N - S: Rancho Conejo

E - W: Hillcrest Bl

FILE: Hillcrest.Rancho Conejo.AM.2020

COMMENTS:



	# OF LANES	CAPACITY	VOLUME	V/C	SPLIT PHASED	CRITICAL V/C
NORTHBOUND						
LEFT	1	1600	253	0.16	N	
THRU	3	4800	1200	0.25		**0.25**
RIGHT	1	1600	217	0.04		
SOUTHBOUND						
LEFT	1	1600	60	0.04	N	
THRU	3	4800	301	0.06		**0.04**
RIGHT	0	0	6	0		
EASTBOUND						
LEFT	1	1600	16	0.01	N	
THRU	2	3200	351	0.11		**0.11**
RIGHT	1	1600	86	0		
WESTBOUND						
LEFT	2	3200	304	0.10	N	
THRU	1	1600	193	0.12		**0.10**
RIGHT	1	1600	95	0.02		

TOTAL ICU **0.50**

LEVEL OF SERVICE **A**

M Y

DATE: 1 2020

LOCATION: Hillcrest Dr @ Rancho Conejo

TAKEN BY: Bradley & Robert

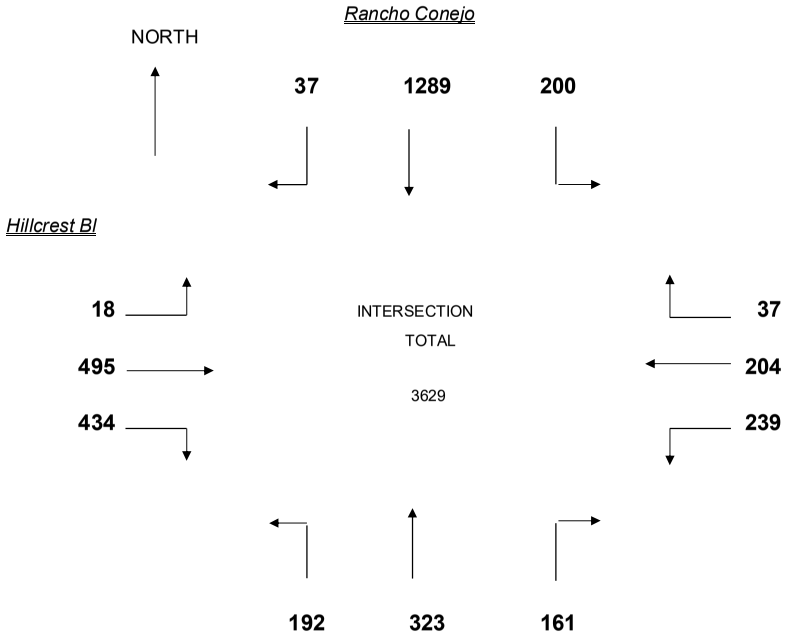
PEAK HOUR: 4:45-5:45

N - S: Rancho Conejo

E - W: Hillcrest Bl

FILE: Hillcrest.Rancho Conejo.PM.2020

COMMENTS:



	# OF LANES	CAPACITY	VOLUME	V/C	SPLIT PHASED	CRITICAL V/C
NORTHBOUND						
LEFT	1	1600	192	0.12	N	
THRU	3	4800	323	0.07		**0.12**
RIGHT	1	1600	161	0.03		
SOUTHBOUND						
LEFT	1	1600	200	0.13	N	
THRU	3	4800	1289	0.28		**0.28**
RIGHT	0	0	37	0		
EASTBOUND						
LEFT	1	1600	18	0.01	N	
THRU	2	3200	495	0.15		**0.15**
RIGHT	1	1600	434	0.15		
WESTBOUND						
LEFT	2	3200	239	0.07	N	
THRU	1	1600	204	0.13		**0.07**
RIGHT	1	1600	37	0		

TOTAL ICU **0.62**

LEVEL OF SERVICE **B**

Month Yr
11 2019

LOCATION: Hillcrest @ Ventu Park

TAKEN BY: Bradley & Robert

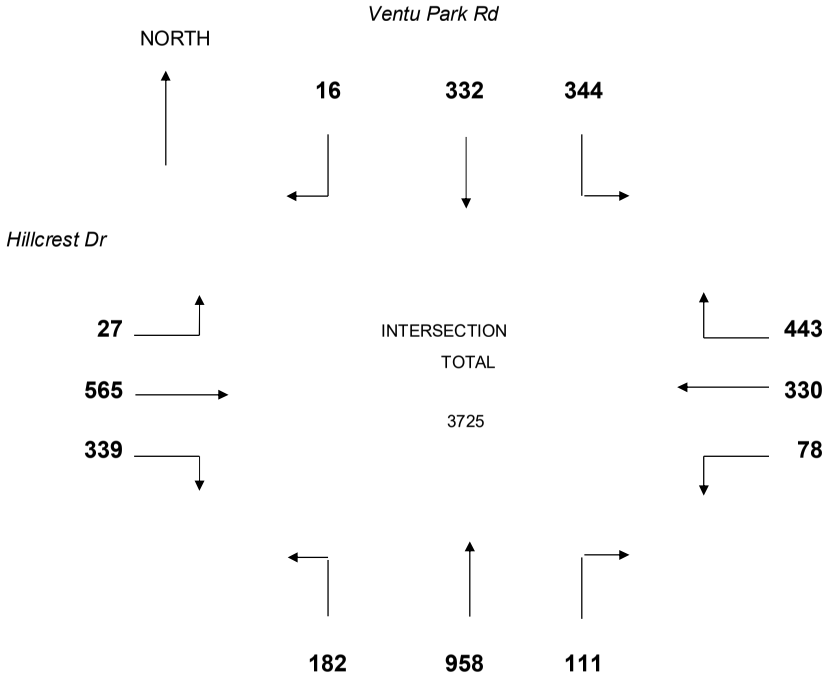
PEAK HOUR: 7:15 - 8:15

N - S: Ventu Park Rd

E - W: Hillcrest Dr

FILE: Hillcrest.Ventu Park.AM.2019

COMMENTS: WB ls (1) LT (1) TH (1) TH/RT
Calc (1) LT (1) TH (1) RT



	# OF LANES	CAPACITY	VOLUME	V/C	SPLIT PHASED	CRITICAL V/C
NORTHBOUND						
LEFT	2	3200	182	0.06	N	
THRU	2	3200	958	0.30		**0.30**
RIGHT	1	1600	111	0.02		
SOUTHBOUND						
LEFT	2	3200	344	0.11	N	
THRU	2	3200	332	0.10		**0.11**
RIGHT	1	1600	16	0		
EASTBOUND						
LEFT	1	1600	27	0.02	N	
THRU	2	3200	565	0.18		**0.18**
RIGHT	1	1600	339	0.16		
WESTBOUND						
LEFT	1	1600	78	0.05	N	
THRU	1	1600	330	0.21		**0.05**
RIGHT	1	1600	443	0.17		

TOTAL ICU **0.64**

LEVEL OF SERVICE **B**

Month Yr
12 2019

LOCATION: Hillcrest @ Ventu Park

TAKEN BY: Bradley and Robert

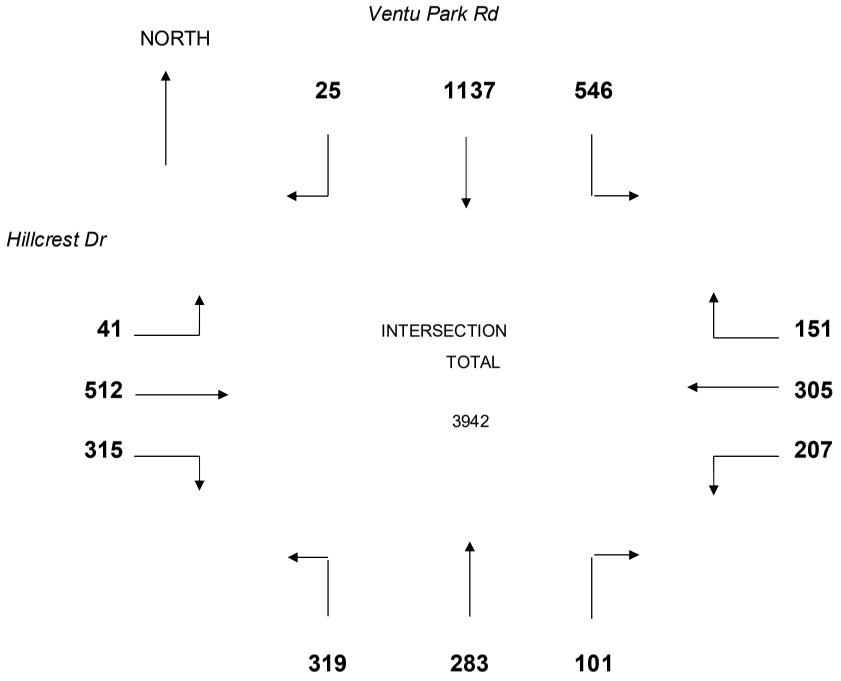
PEAK HOUR: 4:45 - 5:45

N - S: Ventu Park Rd

E - W: Hillcrest Dr

FILE: Hillcrest.Ventu Park.PM.2019

COMMENTS: WB ls (1) LT (1) TH (1) TH/RT
Calc (1) LT (1) TH (1) RT



	# OF LANES	CAPACITY	VOLUME	V/C	SPLIT PHASED	CRITICAL V/C
NORTHBOUND						
LEFT	2	3200	319	0.10	N	
THRU	2	3200	283	0.09		**0.10**
RIGHT	1	1600	101	0		
SOUTHBOUND						
LEFT	2	3200	546	0.17	N	
THRU	2	3200	1137	0.36		**0.36**
RIGHT	1	1600	25	0		
EASTBOUND						
LEFT	1	1600	41	0.03	N	
THRU	2	3200	512	0.16		**0.16**
RIGHT	1	1600	315	0.10		
WESTBOUND						
LEFT	1	1600	207	0.13	N	
THRU	2	3200	305	0.14		**0.13**
RIGHT	0	0	151	0		

TOTAL ICU **0.75**

LEVEL OF SERVICE **C**

Prepared by National Data & Surveying Services

Rancho Conejo Blvd & 101 NB ramps

Peak Hour Turning Movement Count

ID: 22-050021-008
City: Thousand Oaks

Day: Tuesday
Date: 3/29/2022

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS

AM	7:15 AM - 08:15 AM
NOON	NONE
PM	4:45 PM - 05:45 PM

SOUTHBOUND

AM	142	430	0	0	954	AM
NOON	0	0	0	0	0	NOON
PM	251	922	0	0	613	PM

EASTBOUND

AM	NOON	PM
260	0	401

0 3 0 0

WESTBOUND

	PM	NOON	AM
2	240	0	507
0	0	0	0
0	0	0	0

CONTROL

Signalized

TEV	2019 AM	0 NOON	2436 PM
PHF	0.81		0.93

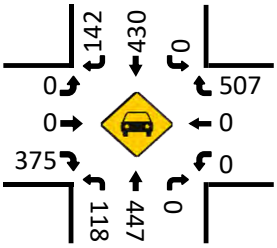
NORTHBOUND

PM	1422	0	150	373	0	PM
NOON	0	0	0	0	0	NOON

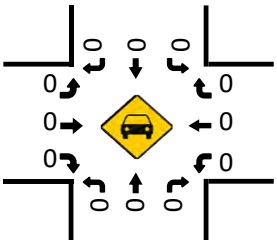
101 NB ramps

101 NB ramps

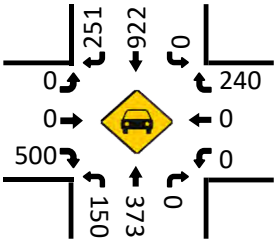
Totals (AM)



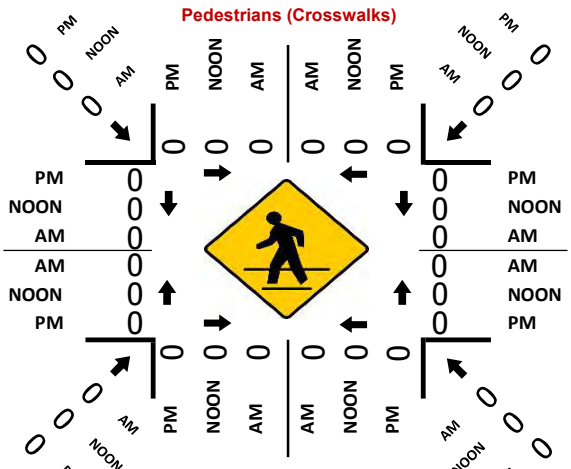
Totals (NOON)



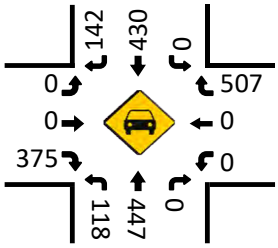
Totals (PM)



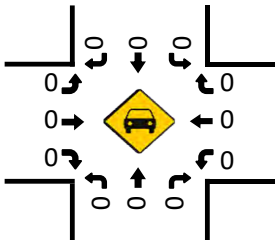
Pedestrians (Crosswalks)



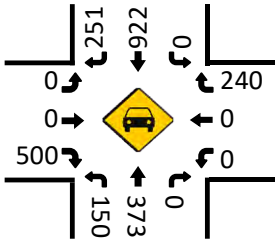
Totals (AM)



Totals (NOON)



Totals (PM)



Prepared by National Data & Surveying Services

Borchard Rd & Newbury Rd/ 101 SB Ramps

Peak Hour Turning Movement Count

ID: 22-050021-009
City: Thousand Oaks

Day: Tuesday
Date: 3/29/2022

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	7:15 AM - 08:15 AM
NONE	NONE
04:45 PM - 05:45 PM	4:45 PM - 05:45 PM

SOUTHBOUND

AM	153	621	23	0	580	AM
NOON	0	0	0	0	0	NOON
PM	528	743	140	0	516	PM
	2	2	2	0		

EASTBOUND

AM	NOON	PM
153	0	528

WESTBOUND

	PM	NOON	AM
2	148	0	89
1	120	0	94
0	0	0	0

CONTROL

Signalized

TEV	1628 AM	0 NOON	2372 PM
PHF	0.75		0.94

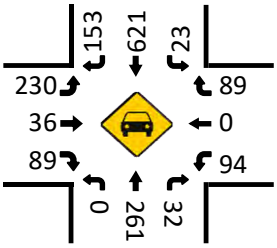
NORTHBOUND

PM	955	0	0	226	83	PM
NOON	0	0	0	0	0	NOON
AM	804	0	0	261	32	AM

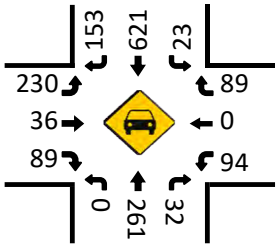
Newbury Rd/ 101 SB Ramps

Newbury Rd/ 101 SB Ramps

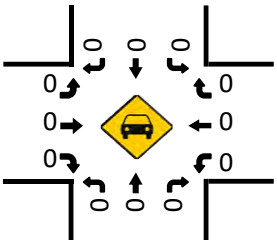
Totals (AM)



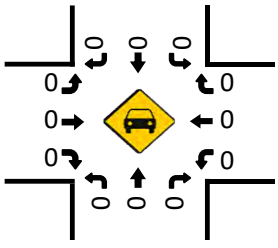
Totals (AM)



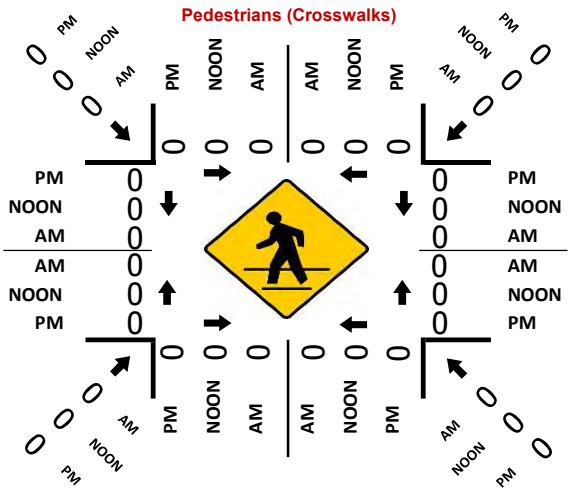
Totals (NOON)



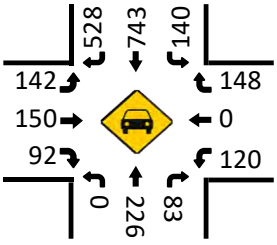
Totals (NOON)



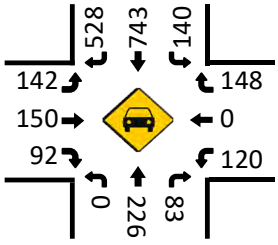
Pedestrians (Crosswalks)



Totals (PM)



Totals (PM)



Appendix 3
ITE Trip Generation Handbook - Tables 6.1 and 6.2

Table 6.1 Unconstrained Internal Person Trip Capture Rates for Trip Origins within a Mixed-Use Development

		WEEKDAY	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Retail	28%	20%
	To Restaurant	63%	4%
	To Cinema/Entertainment	0%	0%
	To Residential	1%	2%
	To Hotel	0%	0%
From RETAIL	To Office	29%	2%
	To Restaurant	13%	29%
	To Cinema/Entertainment	0%	4%
	To Residential	14%	26%
	To Hotel	0%	5%
From RESTAURANT	To Office	31%	3%
	To Retail	14%	41%
	To Cinema/Entertainment	0%	8%
	To Residential	4%	18%
	To Hotel	3%	7%
From CINEMA/ENTERTAINMENT	To Office	0%	2%
	To Retail	0%	21%
	To Restaurant	0%	31%
	To Residential	0%	8%
	To Hotel	0%	2%
From RESIDENTIAL	To Office	2%	4%
	To Retail	1%	42%
	To Restaurant	20%	21%
	To Cinema/Entertainment	0%	0%
	To Hotel	0%	3%
From HOTEL	To Office	75%	0%
	To Retail	14%	16%
	To Restaurant	9%	68%
	To Cinema/Entertainment	0%	0%
	To Residential	0%	2%

Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.* Washington, DC: Transportation Research Board, Tables 99 and 100, 2011.

Table 6.2 Unconstrained Internal Person Trip Capture Rates for Trip Destinations within a Mixed-Use Development

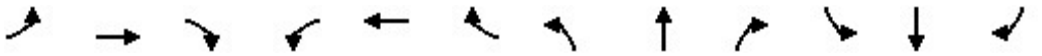
		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Retail	4%	31%
	From Restaurant	14%	30%
	From Cinema/Entertainment	0%	6%
	From Residential	3%	57%
	From Hotel	3%	0%
To RETAIL	From Office	32%	8%
	From Restaurant	8%	50%
	From Cinema/Entertainment	0%	4%
	From Residential	17%	10%
	From Hotel	4%	2%
To RESTAURANT	From Office	23%	2%
	From Retail	50%	29%
	From Cinema/Entertainment	0%	3%
	From Residential	20%	14%
	From Hotel	6%	5%
To CINEMA/ENTERTAINMENT	From Office	0%	1%
	From Retail	0%	26%
	From Restaurant	0%	32%
	From Residential	0%	0%
	From Hotel	0%	0%
To RESIDENTIAL	From Office	0%	4%
	From Retail	2%	46%
	From Restaurant	5%	16%
	From Cinema/Entertainment	0%	4%
	From Hotel	0%	0%
To HOTEL	From Office	0%	0%
	From Retail	0%	17%
	From Restaurant	4%	71%
	From Cinema/Entertainment	0%	1%
	From Residential	0%	12%

Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.* Washington, DC: Transportation Research Board, Tables 101 and 102, 2011.

Appendix 4

Intersection Level of Service Calculation Worksheets

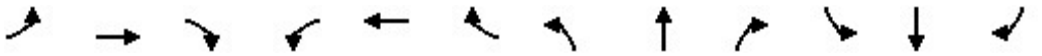
Existing and Existing + Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	351	71	253	193	95	144	685	124	60	250	6
Future Volume (veh/h)	16	351	71	253	193	95	144	685	124	60	250	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	16	351	71	253	193	95	144	685	124	60	250	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	32	473	722	335	396	404	574	2625	969	77	1206	29
Arrive On Green	0.02	0.14	0.14	0.10	0.22	0.22	0.11	0.17	0.17	0.04	0.24	0.24
Sat Flow, veh/h	1753	3497	1560	3401	1841	1560	1753	5025	1560	1753	5049	121
Grp Volume(v), veh/h	16	351	71	253	193	95	144	685	124	60	165	91
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1700	1841	1560	1753	1675	1560	1753	1675	1819
Q Serve(g_s), s	0.8	8.7	0.0	6.5	8.3	4.3	6.8	10.6	1.2	3.0	3.6	3.6
Cycle Q Clear(g_c), s	0.8	8.7	0.0	6.5	8.3	4.3	6.8	10.6	1.2	3.0	3.6	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	32	473	722	335	396	404	574	2625	969	77	800	435
V/C Ratio(X)	0.50	0.74	0.10	0.76	0.49	0.23	0.25	0.26	0.13	0.78	0.21	0.21
Avail Cap(c_a), veh/h	107	758	849	510	562	545	574	2625	969	205	800	435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	37.4	13.6	39.5	31.0	26.3	30.0	22.2	3.9	42.6	27.4	27.4
Incr Delay (d2), s/veh	11.5	2.3	0.1	3.5	0.9	0.3	0.2	0.2	0.2	15.4	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.7	0.7	2.8	3.6	1.5	2.9	4.4	0.3	1.6	1.4	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	39.7	13.7	43.0	31.9	26.6	30.2	22.4	4.1	58.0	28.0	28.5
LnGrp LOS	E	D	B	D	C	C	C	C	A	E	C	C
Approach Vol, veh/h		438			541			953			316	
Approach Delay, s/veh		36.1			36.1			21.2			33.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	51.5	13.4	16.7	34.0	26.0	6.1	23.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	17.5	21.5	5.5	27.5
Max Q Clear Time (g_c+I1), s	5.0	12.6	8.5	10.7	8.8	5.6	2.8	10.3
Green Ext Time (p_c), s	0.0	4.2	0.4	1.5	0.2	1.2	0.0	1.1

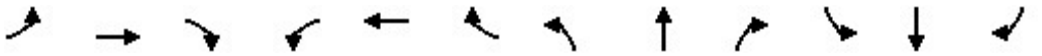
Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	356	71	319	205	104	144	685	150	64	250	6
Future Volume (veh/h)	16	356	71	319	205	104	144	685	150	64	250	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	16	356	71	319	205	104	144	685	150	64	250	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	32	478	692	399	434	441	538	2507	962	82	1206	29
Arrive On Green	0.02	0.14	0.14	0.12	0.24	0.24	0.10	0.16	0.16	0.05	0.24	0.24
Sat Flow, veh/h	1753	3497	1560	3401	1841	1560	1753	5025	1560	1753	5049	121
Grp Volume(v), veh/h	16	356	71	319	205	104	144	685	150	64	165	91
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1700	1841	1560	1753	1675	1560	1753	1675	1819
Q Serve(g_s), s	0.8	8.8	0.0	8.2	8.6	4.6	6.8	10.7	1.4	3.3	3.6	3.6
Cycle Q Clear(g_c), s	0.8	8.8	0.0	8.2	8.6	4.6	6.8	10.7	1.4	3.3	3.6	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	32	478	692	399	434	441	538	2507	962	82	800	435
V/C Ratio(X)	0.50	0.74	0.10	0.80	0.47	0.24	0.27	0.27	0.16	0.78	0.21	0.21
Avail Cap(c_a), veh/h	107	758	817	510	562	550	538	2507	962	205	800	435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	37.3	14.6	38.7	29.6	24.8	31.1	23.3	3.9	42.4	27.4	27.4
Incr Delay (d2), s/veh	11.5	2.3	0.1	6.9	0.8	0.3	0.2	0.2	0.3	14.5	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.7	0.8	3.6	3.7	1.6	2.9	4.5	0.4	1.7	1.4	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	39.7	14.7	45.5	30.4	25.1	31.3	23.5	4.2	56.9	28.0	28.5
LnGrp LOS	E	D	B	D	C	C	C	C	A	E	C	C
Approach Vol, veh/h		443			628			979			320	
Approach Delay, s/veh		36.2			37.2			21.7			33.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	49.4	15.1	16.8	32.1	26.0	6.1	25.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	17.5	21.5	5.5	27.5
Max Q Clear Time (g_c+I1), s	5.3	12.7	10.2	10.8	8.8	5.6	2.8	10.6
Green Ext Time (p_c), s	0.0	4.3	0.4	1.5	0.2	1.2	0.0	1.2

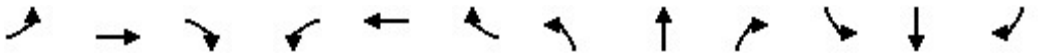
Intersection Summary	
HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	495	260	143	204	37	192	323	161	200	773	37
Future Volume (veh/h)	18	495	260	143	204	37	192	323	161	200	773	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	18	495	260	143	204	37	192	323	161	200	773	37
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	35	632	489	213	411	797	233	1351	517	504	2082	99
Arrive On Green	0.02	0.18	0.18	0.06	0.22	0.22	0.04	0.09	0.09	0.29	0.42	0.42
Sat Flow, veh/h	1753	3497	1560	3401	1841	1560	1753	5025	1560	1753	4914	234
Grp Volume(v), veh/h	18	495	260	143	204	37	192	323	161	200	526	284
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1700	1841	1560	1753	1675	1560	1753	1675	1799
Q Serve(g_s), s	0.9	12.2	8.5	3.7	8.7	0.2	9.8	5.4	2.9	8.3	9.7	9.7
Cycle Q Clear(g_c), s	0.9	12.2	8.5	3.7	8.7	0.2	9.8	5.4	2.9	8.3	9.7	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	35	632	489	213	411	797	233	1351	517	504	1419	762
V/C Ratio(X)	0.51	0.78	0.53	0.67	0.50	0.05	0.82	0.24	0.31	0.40	0.37	0.37
Avail Cap(c_a), veh/h	97	797	563	321	491	865	380	1351	517	504	1419	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	35.2	12.8	41.3	30.5	4.9	42.0	32.4	28.7	25.8	17.7	17.8
Incr Delay (d2), s/veh	10.9	4.0	0.9	3.6	0.9	0.0	6.9	0.4	1.4	0.5	0.7	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.2	3.4	1.6	3.7	0.2	4.8	2.2	3.2	3.3	3.5	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	39.2	13.7	44.9	31.5	4.9	48.8	32.8	30.2	26.3	18.5	19.1
LnGrp LOS	D	D	B	D	C	A	D	C	C	C	B	B
Approach Vol, veh/h		773			384			676			1010	
Approach Delay, s/veh		31.0			33.9			36.7			20.2	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.4	28.7	10.1	20.8	16.5	42.6	6.3	24.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.8	24.2	8.5	20.5	19.5	23.5	5.0	24.0
Max Q Clear Time (g_c+I1), s	10.3	7.4	5.7	14.2	11.8	11.7	2.9	10.7
Green Ext Time (p_c), s	0.3	2.2	0.1	2.1	0.3	3.7	0.0	0.9

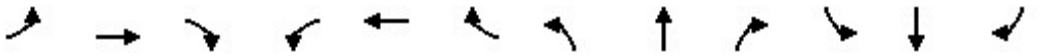
Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	508	260	194	213	45	192	323	233	210	773	37
Future Volume (veh/h)	18	508	260	194	213	45	192	323	233	210	773	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	18	508	260	194	213	45	192	323	233	210	773	37
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	35	643	494	266	446	797	233	1351	542	471	1989	95
Arrive On Green	0.02	0.18	0.18	0.08	0.24	0.24	0.04	0.09	0.09	0.27	0.40	0.40
Sat Flow, veh/h	1753	3497	1560	3401	1841	1560	1753	5025	1560	1753	4914	234
Grp Volume(v), veh/h	18	508	260	194	213	45	192	323	233	210	526	284
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1700	1841	1560	1753	1675	1560	1753	1675	1799
Q Serve(g_s), s	0.9	12.5	8.2	5.0	8.9	0.2	9.8	5.4	5.5	9.0	10.0	10.0
Cycle Q Clear(g_c), s	0.9	12.5	8.2	5.0	8.9	0.2	9.8	5.4	5.5	9.0	10.0	10.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	35	643	494	266	446	797	233	1351	542	471	1356	728
V/C Ratio(X)	0.51	0.79	0.53	0.73	0.48	0.06	0.82	0.24	0.43	0.45	0.39	0.39
Avail Cap(c_a), veh/h	97	797	563	321	491	835	380	1351	542	471	1356	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	35.1	12.1	40.5	29.2	4.9	42.0	32.4	29.2	27.3	18.9	18.9
Incr Delay (d2), s/veh	10.9	4.3	0.9	6.5	0.8	0.0	6.6	0.4	2.2	0.7	0.8	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.4	3.2	2.2	3.8	0.2	4.8	2.2	4.9	3.6	3.7	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	39.4	12.9	47.1	30.0	5.0	48.6	32.8	31.4	28.0	19.8	20.5
LnGrp LOS	D	D	B	D	C	A	D	C	C	C	B	C
Approach Vol, veh/h		786			452			748			1020	
Approach Delay, s/veh		31.0			34.8			36.4			21.7	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.7	28.7	11.5	21.1	16.5	40.9	6.3	26.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.8	24.2	8.5	20.5	19.5	23.5	5.0	24.0
Max Q Clear Time (g_c+I1), s	11.0	7.5	7.0	14.5	11.8	12.0	2.9	10.9
Green Ext Time (p_c), s	0.3	2.5	0.1	2.1	0.3	3.7	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	29.7
HCM 6th LOS	C



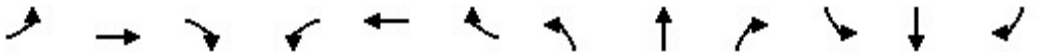
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	565	339	78	330	443	182	958	111	344	332	16
Future Volume (veh/h)	27	565	339	78	330	443	182	958	111	344	332	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	27	565	339	78	330	271	182	958	55	344	332	8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	51	816	490	99	481	387	275	1165	520	431	1326	592
Arrive On Green	0.03	0.23	0.23	0.06	0.26	0.26	0.08	0.33	0.33	0.13	0.38	0.38
Sat Flow, veh/h	1753	3497	1560	1753	1841	1482	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	27	565	339	78	313	288	182	958	55	344	332	8
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1574	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	1.1	10.6	13.7	3.2	11.6	11.9	3.7	18.1	1.8	7.1	4.7	0.2
Cycle Q Clear(g_c), s	1.1	10.6	13.7	3.2	11.6	11.9	3.7	18.1	1.8	7.1	4.7	0.2
Prop In Lane	1.00		1.00	1.00		0.94	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	816	490	99	457	411	275	1165	520	431	1326	592
V/C Ratio(X)	0.53	0.69	0.69	0.78	0.69	0.70	0.66	0.82	0.11	0.80	0.25	0.01
Avail Cap(c_a), veh/h	124	874	516	134	457	411	505	1165	520	449	1326	592
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	25.2	21.6	33.5	23.9	24.1	32.2	22.0	16.6	30.6	15.3	13.9
Incr Delay (d2), s/veh	8.4	2.2	3.7	19.1	4.2	5.2	2.7	6.6	0.4	9.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.2	4.9	1.8	4.8	4.5	1.5	7.5	0.6	3.2	1.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	27.4	25.4	52.6	28.2	29.3	34.9	28.6	17.0	40.0	15.8	14.0
LnGrp LOS	D	C	C	D	C	C	C	C	B	D	B	B
Approach Vol, veh/h		931			679			1195			684	
Approach Delay, s/veh		27.1			31.5			29.1			28.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	28.5	8.6	21.3	10.3	31.8	6.6	23.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	24.0	5.5	18.0	10.7	22.8	5.1	18.4
Max Q Clear Time (g_c+I1), s	9.1	20.1	5.2	15.7	5.7	6.7	3.1	13.9
Green Ext Time (p_c), s	0.1	2.2	0.0	1.1	0.2	1.7	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



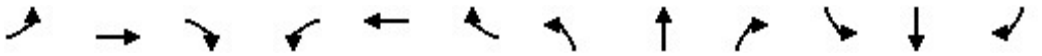
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	570	344	78	332	443	184	958	111	344	332	16
Future Volume (veh/h)	27	570	344	78	332	443	184	958	111	344	332	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	27	570	344	78	332	271	184	958	55	344	332	8
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	51	822	493	99	485	388	277	1163	519	431	1321	589
Arrive On Green	0.03	0.23	0.23	0.06	0.26	0.26	0.08	0.33	0.33	0.13	0.38	0.38
Sat Flow, veh/h	1753	3497	1560	1753	1846	1477	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	27	570	344	78	314	289	184	958	55	344	332	8
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1575	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	1.1	10.8	14.0	3.2	11.7	12.0	3.8	18.2	1.8	7.1	4.7	0.2
Cycle Q Clear(g_c), s	1.1	10.8	14.0	3.2	11.7	12.0	3.8	18.2	1.8	7.1	4.7	0.2
Prop In Lane	1.00		1.00	1.00		0.94	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51	822	493	99	459	414	277	1163	519	431	1321	589
V/C Ratio(X)	0.53	0.69	0.70	0.78	0.68	0.70	0.67	0.82	0.11	0.80	0.25	0.01
Avail Cap(c_a), veh/h	124	872	516	134	459	414	504	1163	519	447	1321	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.6	25.2	21.6	33.6	23.9	24.0	32.2	22.2	16.7	30.6	15.4	14.1
Incr Delay (d2), s/veh	8.4	2.2	3.9	19.2	4.2	5.1	2.7	6.7	0.4	9.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.3	5.0	1.8	4.8	4.6	1.6	7.6	0.6	3.2	1.7	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.9	27.5	25.6	52.8	28.1	29.2	35.0	28.8	17.1	40.2	15.9	14.1
LnGrp LOS	D	C	C	D	C	C	C	C	B	D	B	B
Approach Vol, veh/h		941			681			1197			684	
Approach Delay, s/veh		27.2			31.4			29.2			28.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	28.5	8.6	21.5	10.4	31.8	6.6	23.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	24.0	5.5	18.0	10.7	22.8	5.1	18.4
Max Q Clear Time (g_c+I1), s	9.1	20.2	5.2	16.0	5.8	6.7	3.1	14.0
Green Ext Time (p_c), s	0.1	2.1	0.0	1.0	0.2	1.7	0.0	1.4

Intersection Summary	
HCM 6th Ctrl Delay	28.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



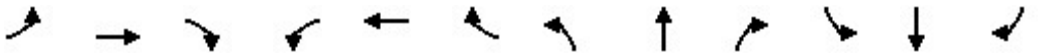
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	633	302	111	289	103	500	305	78	220	328	11
Future Volume (veh/h)	21	633	302	111	289	103	500	305	78	220	328	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	21	633	302	111	289	52	500	305	41	220	328	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	42	786	623	141	834	148	594	1222	545	315	935	417
Arrive On Green	0.02	0.22	0.22	0.08	0.28	0.28	0.17	0.35	0.35	0.09	0.27	0.27
Sat Flow, veh/h	1753	3497	1560	1753	2967	527	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	21	633	302	111	169	172	500	305	41	220	328	6
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1746	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	0.8	12.2	10.3	4.4	5.5	5.6	10.1	4.4	1.2	4.5	5.4	0.2
Cycle Q Clear(g_c), s	0.8	12.2	10.3	4.4	5.5	5.6	10.1	4.4	1.2	4.5	5.4	0.2
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	42	786	623	141	491	491	594	1222	545	315	935	417
V/C Ratio(X)	0.50	0.81	0.48	0.79	0.34	0.35	0.84	0.25	0.08	0.70	0.35	0.01
Avail Cap(c_a), veh/h	123	886	667	160	491	491	646	1222	545	464	935	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	26.1	15.9	32.1	20.3	20.4	28.4	16.5	15.5	31.3	21.1	19.2
Incr Delay (d2), s/veh	9.0	5.0	0.6	20.4	0.4	0.4	9.2	0.5	0.3	2.8	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.1	3.2	2.5	2.0	2.1	4.5	1.6	0.4	1.8	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	31.1	16.5	52.5	20.7	20.8	37.6	17.0	15.7	34.1	22.1	19.2
LnGrp LOS	D	C	B	D	C	C	D	B	B	C	C	B
Approach Vol, veh/h		956			452			846			554	
Approach Delay, s/veh		26.7			28.6			29.1			26.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	29.3	10.2	20.5	16.9	23.5	6.2	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.7	22.8	6.5	18.0	13.5	19.0	5.0	19.5
Max Q Clear Time (g_c+I1), s	6.5	6.4	6.4	14.2	12.1	7.4	2.8	7.6
Green Ext Time (p_c), s	0.2	1.7	0.0	1.8	0.3	1.4	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



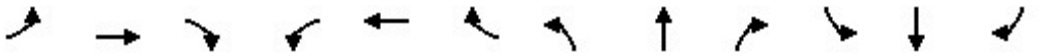
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	633	302	111	289	103	500	305	78	220	328	11
Future Volume (veh/h)	21	633	302	111	289	103	500	305	78	220	328	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	21	633	302	111	289	52	500	305	41	220	328	6
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	42	786	623	141	834	148	594	1222	545	315	935	417
Arrive On Green	0.02	0.22	0.22	0.08	0.28	0.28	0.17	0.35	0.35	0.09	0.27	0.27
Sat Flow, veh/h	1753	3497	1560	1753	2967	527	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	21	633	302	111	169	172	500	305	41	220	328	6
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1746	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	0.8	12.2	10.3	4.4	5.5	5.6	10.1	4.4	1.2	4.5	5.4	0.2
Cycle Q Clear(g_c), s	0.8	12.2	10.3	4.4	5.5	5.6	10.1	4.4	1.2	4.5	5.4	0.2
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	42	786	623	141	491	491	594	1222	545	315	935	417
V/C Ratio(X)	0.50	0.81	0.48	0.79	0.34	0.35	0.84	0.25	0.08	0.70	0.35	0.01
Avail Cap(c_a), veh/h	123	886	667	160	491	491	646	1222	545	464	935	417
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	26.1	15.9	32.1	20.3	20.4	28.4	16.5	15.5	31.3	21.1	19.2
Incr Delay (d2), s/veh	9.0	5.0	0.6	20.4	0.4	0.4	9.2	0.5	0.3	2.8	1.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.1	3.2	2.5	2.0	2.1	4.5	1.6	0.4	1.8	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.3	31.1	16.5	52.5	20.7	20.8	37.6	17.0	15.7	34.1	22.1	19.2
LnGrp LOS	D	C	B	D	C	C	D	B	B	C	C	B
Approach Vol, veh/h		956			452			846			554	
Approach Delay, s/veh		26.7			28.6			29.1			26.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	29.3	10.2	20.5	16.9	23.5	6.2	24.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.7	22.8	6.5	18.0	13.5	19.0	5.0	19.5
Max Q Clear Time (g_c+I1), s	6.5	6.4	6.4	14.2	12.1	7.4	2.8	7.6
Green Ext Time (p_c), s	0.2	1.7	0.0	1.8	0.3	1.4	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	27.8
HCM 6th LOS	C

Notes

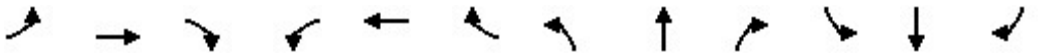
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	375	0	0	507	118	447	0	0	430	142
Future Volume (veh/h)	0	0	375	0	0	507	118	447	0	0	430	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	0	1841	0	0	1841	1841	1841	0	0	1841	1841
Adj Flow Rate, veh/h	0	0	408	0	0	551	128	486	0	0	467	154
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	4	0	0	4	4	4	0	0	4	4
Cap, veh/h	0	0	0	0	0	0	160	4774	0	0	3051	971
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.31	0.00	0.00	0.27	0.27
Sat Flow, veh/h		0			0		1753	5191	0	0	3939	1201
Grp Volume(v), veh/h		0.0			0.0		128	486	0	0	413	208
Grp Sat Flow(s),veh/h/ln							1753	1675	0	0	1675	1624
Q Serve(g_s), s							6.5	6.2	0.0	0.0	8.5	8.8
Cycle Q Clear(g_c), s							6.5	6.2	0.0	0.0	8.5	8.8
Prop In Lane							1.00		0.00	0.00		0.74
Lane Grp Cap(c), veh/h							160	4774	0	0	2709	1313
V/C Ratio(X)							0.80	0.10	0.00	0.00	0.15	0.16
Avail Cap(c_a), veh/h							205	4774	0	0	2709	1313
HCM Platoon Ratio							0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(I)							0.96	0.96	0.00	0.00	0.95	0.95
Uniform Delay (d), s/veh							42.8	3.7	0.0	0.0	9.4	9.6
Incr Delay (d2), s/veh							15.1	0.0	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							3.5	0.0	0.0	0.0	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							57.9	3.7	0.0	0.0	9.5	9.8
LnGrp LOS							E	A	A	A	A	A
Approach Vol, veh/h								614			621	
Approach Delay, s/veh								15.0			9.6	
Approach LOS								B			A	

Timer - Assigned Phs	2		5	6
Phs Duration (G+Y+Rc), s	90.0		12.7	77.3
Change Period (Y+Rc), s	4.5		4.5	4.5
Max Green Setting (Gmax), s	34.5		10.5	19.5
Max Q Clear Time (g_c+I1), s	8.2		8.5	10.8
Green Ext Time (p_c), s	3.1		0.1	2.4

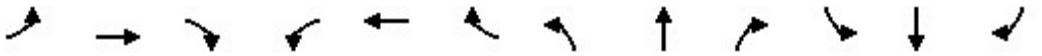
Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	375	0	0	526	118	454	0	0	481	157
Future Volume (veh/h)	0	0	375	0	0	526	118	454	0	0	481	157
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	0	1841	0	0	1841	1841	1841	0	0	1841	1841
Adj Flow Rate, veh/h	0	0	408	0	0	572	128	493	0	0	523	171
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	4	0	0	4	4	4	0	0	4	4
Cap, veh/h	0	0	0	0	0	0	160	4774	0	0	3053	970
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.31	0.00	0.00	0.27	0.27
Sat Flow, veh/h		0			0		1753	5191	0	0	3941	1199
Grp Volume(v), veh/h		0.0			0.0		128	493	0	0	462	232
Grp Sat Flow(s),veh/h/ln							1753	1675	0	0	1675	1625
Q Serve(g_s), s							6.5	6.3	0.0	0.0	9.5	9.9
Cycle Q Clear(g_c), s							6.5	6.3	0.0	0.0	9.5	9.9
Prop In Lane							1.00		0.00	0.00		0.74
Lane Grp Cap(c), veh/h							160	4774	0	0	2709	1314
V/C Ratio(X)							0.80	0.10	0.00	0.00	0.17	0.18
Avail Cap(c_a), veh/h							205	4774	0	0	2709	1314
HCM Platoon Ratio							0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(I)							0.96	0.96	0.00	0.00	0.92	0.92
Uniform Delay (d), s/veh							42.8	3.7	0.0	0.0	9.8	9.9
Incr Delay (d2), s/veh							15.1	0.0	0.0	0.0	0.1	0.3
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							3.5	0.0	0.0	0.0	2.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							57.9	3.7	0.0	0.0	9.9	10.2
LnGrp LOS							E	A	A	A	A	B
Approach Vol, veh/h								621			694	
Approach Delay, s/veh								14.9			10.0	
Approach LOS								B			B	

Timer - Assigned Phs	2		5	6
Phs Duration (G+Y+Rc), s	90.0		12.7	77.3
Change Period (Y+Rc), s	4.5		4.5	4.5
Max Green Setting (Gmax), s	34.5		10.5	19.5
Max Q Clear Time (g_c+I1), s	8.3		8.5	11.9
Green Ext Time (p_c), s	3.1		0.1	2.5

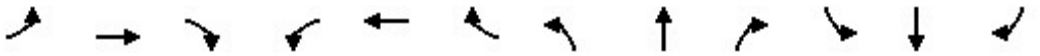
Intersection Summary	
HCM 6th Ctrl Delay	12.3
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	500	0	0	240	150	373	0	0	922	251
Future Volume (veh/h)	0	0	500	0	0	240	150	373	0	0	922	251
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	0	1841	0	0	1841	1841	1841	0	0	1841	1841
Adj Flow Rate, veh/h	0	0	543	0	0	261	163	405	0	0	1002	273
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	4	0	0	4	4	4	0	0	4	4
Cap, veh/h	0	0	0	0	0	0	197	4774	0	0	3096	842
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.95	0.00	0.00	0.26	0.26
Sat Flow, veh/h		0			0		1753	5191	0	0	4095	1069
Grp Volume(v), veh/h		0.0			0.0		163	405	0	0	854	421
Grp Sat Flow(s),veh/h/ln							1753	1675	0	0	1675	1648
Q Serve(g_s), s							8.2	0.4	0.0	0.0	18.5	18.6
Cycle Q Clear(g_c), s							8.2	0.4	0.0	0.0	18.5	18.6
Prop In Lane							1.00		0.00	0.00		0.65
Lane Grp Cap(c), veh/h							197	4774	0	0	2640	1299
V/C Ratio(X)							0.83	0.08	0.00	0.00	0.32	0.32
Avail Cap(c_a), veh/h							236	4774	0	0	2640	1299
HCM Platoon Ratio							1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)							0.95	0.95	0.00	0.00	0.89	0.89
Uniform Delay (d), s/veh							39.1	0.1	0.0	0.0	13.9	13.9
Incr Delay (d2), s/veh							17.7	0.0	0.0	0.0	0.3	0.6
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							4.3	0.0	0.0	0.0	8.2	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							56.9	0.2	0.0	0.0	14.2	14.5
LnGrp LOS							E	A	A	A	B	B
Approach Vol, veh/h								568			1275	
Approach Delay, s/veh								16.4			14.3	
Approach LOS								B			B	

Timer - Assigned Phs	2		5	6								
Phs Duration (G+Y+Rc), s	90.0		14.6	75.4								
Change Period (Y+Rc), s	4.5		4.5	4.5								
Max Green Setting (Gmax), s	42.9		12.1	26.3								
Max Q Clear Time (g_c+I1), s	2.4		10.2	20.6								
Green Ext Time (p_c), s	2.7		0.1	3.6								

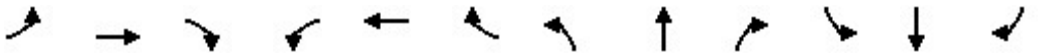
Intersection Summary		
HCM 6th Ctrl Delay	15.0	
HCM 6th LOS	B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	500	0	0	291	150	394	0	0	962	262
Future Volume (veh/h)	0	0	500	0	0	291	150	394	0	0	962	262
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	0	1841	0	0	1841	1841	1841	0	0	1841	1841
Adj Flow Rate, veh/h	0	0	543	0	0	316	163	428	0	0	1046	285
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	4	0	0	4	4	4	0	0	4	4
Cap, veh/h	0	0	0	0	0	0	197	4774	0	0	3095	843
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.95	0.00	0.00	0.26	0.26
Sat Flow, veh/h		0			0		1753	5191	0	0	4094	1070
Grp Volume(v), veh/h		0.0			0.0		163	428	0	0	892	439
Grp Sat Flow(s),veh/h/ln							1753	1675	0	0	1675	1648
Q Serve(g_s), s							8.2	0.4	0.0	0.0	19.4	19.5
Cycle Q Clear(g_c), s							8.2	0.4	0.0	0.0	19.4	19.5
Prop In Lane							1.00		0.00	0.00		0.65
Lane Grp Cap(c), veh/h							197	4774	0	0	2640	1299
V/C Ratio(X)							0.83	0.09	0.00	0.00	0.34	0.34
Avail Cap(c_a), veh/h							236	4774	0	0	2640	1299
HCM Platoon Ratio							1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)							0.95	0.95	0.00	0.00	0.87	0.87
Uniform Delay (d), s/veh							39.1	0.1	0.0	0.0	14.3	14.3
Incr Delay (d2), s/veh							17.7	0.0	0.0	0.0	0.3	0.6
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							4.3	0.0	0.0	0.0	8.6	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							56.9	0.2	0.0	0.0	14.6	14.9
LnGrp LOS							E	A	A	A	B	B
Approach Vol, veh/h								591			1331	
Approach Delay, s/veh								15.8			14.7	
Approach LOS								B			B	

Timer - Assigned Phs	2		5	6								
Phs Duration (G+Y+Rc), s	90.0		14.6	75.4								
Change Period (Y+Rc), s	4.5		4.5	4.5								
Max Green Setting (Gmax), s	42.9		12.1	26.3								
Max Q Clear Time (g_c+I1), s	2.4		10.2	21.5								
Green Ext Time (p_c), s	2.8		0.1	3.2								

Intersection Summary												
HCM 6th Ctrl Delay		15.0										
HCM 6th LOS		B										



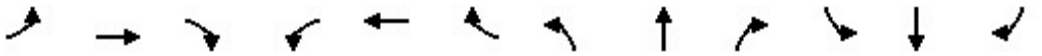
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	36	89	94	0	89	0	261	32	23	621	153
Future Volume (veh/h)	230	36	89	94	0	89	0	261	32	23	621	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	0	1841	0	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	250	39	0	102	0	97	0	284	35	25	675	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	0	4	0	4	4	4	4	4
Cap, veh/h	345	187		0	0	0	0	1439	173	1469	2793	
Arrive On Green	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.14	0.26	0.00
Sat Flow, veh/h	3401	1841	1560		0		0	4711	547	3401	3497	2745
Grp Volume(v), veh/h	250	39	0		0.0		0	207	112	25	675	0
Grp Sat Flow(s),veh/h/ln	1700	1841	1560				0	1675	1742	1700	1749	1373
Q Serve(g_s), s	6.4	1.8	0.0				0.0	4.1	4.2	0.6	13.7	0.0
Cycle Q Clear(g_c), s	6.4	1.8	0.0				0.0	4.1	4.2	0.6	13.7	0.0
Prop In Lane	1.00		1.00				0.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	345	187					0	1061	552	1469	2793	
V/C Ratio(X)	0.72	0.21					0.00	0.20	0.20	0.02	0.24	
Avail Cap(c_a), veh/h	661	358					0	1061	552	1469	2793	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	0.77	0.77	0.00
Uniform Delay (d), s/veh	39.2	37.1	0.0				0.0	22.4	22.4	22.2	11.7	0.0
Incr Delay (d2), s/veh	2.9	0.5	0.0				0.0	0.4	0.8	0.0	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(50%),veh/ln	2.8	0.8	0.0				0.0	1.6	1.8	0.2	6.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	37.7	0.0				0.0	22.8	23.3	22.2	11.9	0.0
LnGrp LOS	D	D					A	C	C	C	B	
Approach Vol, veh/h		289						319			700	
Approach Delay, s/veh		41.5						23.0			12.2	
Approach LOS		D						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	43.4	33.0		13.6		76.4						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	28.5		17.5		40.5						
Max Q Clear Time (g_c+I1), s	2.6	6.2		8.4		15.7						
Green Ext Time (p_c), s	0.0	1.9		0.7		5.0						

Intersection Summary												
HCM 6th Ctrl Delay			21.3									
HCM 6th LOS			C									

Notes

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



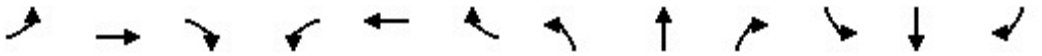
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	36	89	94	0	90	0	262	32	25	624	199
Future Volume (veh/h)	235	36	89	94	0	90	0	262	32	25	624	199
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	0	1841	0	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	255	39	0	102	0	98	0	285	35	27	678	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	0	4	0	4	4	4	4	4
Cap, veh/h	350	189		0	0	0	0	1440	173	1464	2788	
Arrive On Green	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.14	0.26	0.00
Sat Flow, veh/h	3401	1841	1560		0		0	4713	545	3401	3497	2745
Grp Volume(v), veh/h	255	39	0		0.0		0	208	112	27	678	0
Grp Sat Flow(s),veh/h/ln	1700	1841	1560				0	1675	1743	1700	1749	1373
Q Serve(g_s), s	6.5	1.7	0.0				0.0	4.1	4.2	0.6	13.7	0.0
Cycle Q Clear(g_c), s	6.5	1.7	0.0				0.0	4.1	4.2	0.6	13.7	0.0
Prop In Lane	1.00		1.00				0.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	350	189					0	1061	552	1464	2788	
V/C Ratio(X)	0.73	0.21					0.00	0.20	0.20	0.02	0.24	
Avail Cap(c_a), veh/h	661	358					0	1061	552	1464	2788	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	0.74	0.74	0.00
Uniform Delay (d), s/veh	39.1	37.0	0.0				0.0	22.4	22.5	22.3	11.8	0.0
Incr Delay (d2), s/veh	2.9	0.5	0.0				0.0	0.4	0.8	0.0	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(50%),veh/ln	2.8	0.8	0.0				0.0	1.6	1.8	0.2	6.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	37.5	0.0				0.0	22.8	23.3	22.3	11.9	0.0
LnGrp LOS	D	D					A	C	C	C	B	
Approach Vol, veh/h		294						320			705	
Approach Delay, s/veh		41.5						23.0			12.3	
Approach LOS		D						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	43.2	33.0		13.8		76.2						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	28.5		17.5		40.5						
Max Q Clear Time (g_c+I1), s	2.6	6.2		8.5		15.7						
Green Ext Time (p_c), s	0.0	2.0		0.7		5.0						

Intersection Summary			
HCM 6th Ctrl Delay		21.4	
HCM 6th LOS		C	

Notes

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



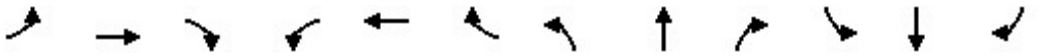
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	150	92	120	0	148	0	226	83	140	743	528
Future Volume (veh/h)	142	150	92	120	0	148	0	226	83	140	743	528
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	0	1841	0	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	154	163	0	130	0	161	0	246	90	152	808	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	0	4	0	4	4	4	4	4
Cap, veh/h	404	219		0	0	0	0	1205	412	1379	2732	
Arrive On Green	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.13	0.26	0.00
Sat Flow, veh/h	3401	1841	1560		0		0	3865	1264	3401	3497	2745
Grp Volume(v), veh/h	154	163	0		0.0		0	221	115	152	808	0
Grp Sat Flow(s),veh/h/ln	1700	1841	1560				0	1675	1613	1700	1749	1373
Q Serve(g_s), s	3.8	7.7	0.0				0.0	4.3	4.7	3.5	16.7	0.0
Cycle Q Clear(g_c), s	3.8	7.7	0.0				0.0	4.3	4.7	3.5	16.7	0.0
Prop In Lane	1.00		1.00				0.00		0.78	1.00		1.00
Lane Grp Cap(c), veh/h	404	219					0	1091	525	1379	2732	
V/C Ratio(X)	0.38	0.74					0.00	0.20	0.22	0.11	0.30	
Avail Cap(c_a), veh/h	737	399					0	1091	525	1379	2732	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	0.45	0.45	0.00
Uniform Delay (d), s/veh	36.6	38.3	0.0				0.0	21.9	22.0	24.7	13.5	0.0
Incr Delay (d2), s/veh	0.6	5.0	0.0				0.0	0.4	1.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.7	0.0				0.0	1.7	1.9	1.4	7.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	43.3	0.0				0.0	22.3	23.0	24.7	13.6	0.0
LnGrp LOS	D	D					A	C	C	C	B	
Approach Vol, veh/h		317						336			960	
Approach Delay, s/veh		40.3						22.6			15.4	
Approach LOS		D						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	41.0	33.8		15.2		74.8						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	14.5	20.5		19.5		39.5						
Max Q Clear Time (g_c+I1), s	5.5	6.7		9.7		18.7						
Green Ext Time (p_c), s	0.3	1.7		1.0		5.8						

Intersection Summary												
HCM 6th Ctrl Delay			21.8									
HCM 6th LOS			C									

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	150	92	120	0	150	0	229	83	142	745	564
Future Volume (veh/h)	158	150	92	120	0	150	0	229	83	142	745	564
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	0	1841	0	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	172	163	0	130	0	163	0	249	90	154	810	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	0	4	0	4	4	4	4	4
Cap, veh/h	406	220		0	0	0	0	1206	408	1379	2730	
Arrive On Green	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.33	0.33	0.13	0.26	0.00
Sat Flow, veh/h	3401	1841	1560		0		0	3877	1254	3401	3497	2745
Grp Volume(v), veh/h	172	163	0		0.0		0	223	116	154	810	0
Grp Sat Flow(s),veh/h/ln	1700	1841	1560				0	1675	1615	1700	1749	1373
Q Serve(g_s), s	4.2	7.7	0.0				0.0	4.3	4.7	3.6	16.8	0.0
Cycle Q Clear(g_c), s	4.2	7.7	0.0				0.0	4.3	4.7	3.6	16.8	0.0
Prop In Lane	1.00		1.00				0.00		0.78	1.00		1.00
Lane Grp Cap(c), veh/h	406	220					0	1089	525	1379	2730	
V/C Ratio(X)	0.42	0.74					0.00	0.20	0.22	0.11	0.30	
Avail Cap(c_a), veh/h	737	399					0	1089	525	1379	2730	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	0.39	0.39	0.00
Uniform Delay (d), s/veh	36.7	38.3	0.0				0.0	22.0	22.1	24.7	13.6	0.0
Incr Delay (d2), s/veh	0.7	4.9	0.0				0.0	0.4	1.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	3.7	0.0				0.0	1.7	1.9	1.4	7.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	43.1	0.0				0.0	22.4	23.1	24.7	13.7	0.0
LnGrp LOS	D	D					A	C	C	C	B	
Approach Vol, veh/h		335						339			964	
Approach Delay, s/veh		40.2						22.6			15.4	
Approach LOS		D						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	41.0	33.8		15.3		74.7						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	14.5	20.5		19.5		39.5						
Max Q Clear Time (g_c+I1), s	5.6	6.7		9.7		18.8						
Green Ext Time (p_c), s	0.3	1.8		1.1		5.8						

Intersection Summary			
HCM 6th Ctrl Delay		22.0	
HCM 6th LOS		C	

Notes

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

HCS Two-Way Stop-Control Report

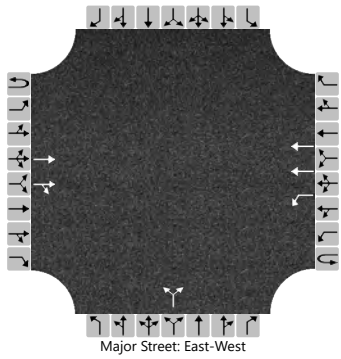
General Information

Analyst	DJL
Agency/Co.	Stantec
Date Performed	10/23/2022
Analysis Year	ExPr
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	2150 Hillcrest Dr

Site Information

Intersection	Hillcrest Dr/Project Dwy
Jurisdiction	Thousand Oaks
East/West Street	Hillcrest Dr
North/South Street	Project Dwy
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume (veh/h)			535	16	0	4	541			87		10				
Percent Heavy Vehicles (%)					4	4				4		4				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Left Only								2							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.18				6.88		6.98				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.24				3.54		3.34				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4					97					
Capacity, c (veh/h)						1001					494					
v/c Ratio						0.00					0.20					
95% Queue Length, Q_{95} (veh)						0.0					0.7					
Control Delay (s/veh)						8.6					14.1					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					0.1				14.1							
Approach LOS					A				B							

HCS Two-Way Stop-Control Report

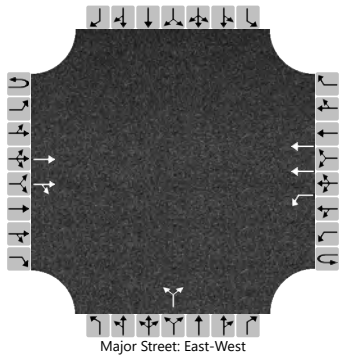
General Information

Analyst	DJL
Agency/Co.	Stantec
Date Performed	10/23/2022
Analysis Year	ExPr
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	2150 Hillcrest Dr

Site Information

Intersection	Hillcrest Dr/Project Dwy
Jurisdiction	Thousand Oaks
East/West Street	Hillcrest Dr
North/South Street	Project Dwy
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume (veh/h)			856	43	0	11	384			68		8				
Percent Heavy Vehicles (%)					4	4				4		4				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage			Left Only							2						

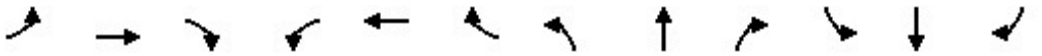
Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.18				6.88		6.98				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.24				3.54		3.34				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11					76					
Capacity, c (veh/h)						739					350					
v/c Ratio						0.01					0.22					
95% Queue Length, Q_{95} (veh)						0.0					0.8					
Control Delay (s/veh)						9.9					18.1					
Level of Service (LOS)						A					C					
Approach Delay (s/veh)						0.3				18.1						
Approach LOS						A				C						

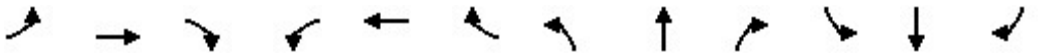
Buildout and Buildout + Project Conditions



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	372	75	268	205	101	153	727	132	64	265	7
Future Volume (veh/h)	17	372	75	268	205	101	153	727	132	64	265	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	17	372	75	268	205	101	153	727	132	64	265	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	34	495	715	350	414	424	555	2557	954	82	1203	32
Arrive On Green	0.02	0.14	0.14	0.10	0.23	0.23	0.10	0.17	0.17	0.05	0.24	0.24
Sat Flow, veh/h	1753	3497	1560	3401	1841	1560	1753	5025	1560	1753	5035	132
Grp Volume(v), veh/h	17	372	75	268	205	101	153	727	132	64	176	96
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1700	1841	1560	1753	1675	1560	1753	1675	1817
Q Serve(g_s), s	0.9	9.2	0.0	6.9	8.7	4.5	7.2	11.4	1.3	3.3	3.8	3.8
Cycle Q Clear(g_c), s	0.9	9.2	0.0	6.9	8.7	4.5	7.2	11.4	1.3	3.3	3.8	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	34	495	715	350	414	424	555	2557	954	82	800	434
V/C Ratio(X)	0.50	0.75	0.10	0.77	0.49	0.24	0.28	0.28	0.14	0.78	0.22	0.22
Avail Cap(c_a), veh/h	107	758	832	510	562	550	555	2557	954	205	800	434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	37.1	13.9	39.3	30.4	25.5	30.8	23.1	4.1	42.4	27.5	27.5
Incr Delay (d2), s/veh	11.2	2.3	0.1	4.1	0.9	0.3	0.2	0.2	0.2	14.5	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.9	0.8	2.9	3.7	1.6	3.1	4.8	0.4	1.7	1.5	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	39.5	13.9	43.5	31.3	25.8	31.0	23.3	4.3	56.9	28.1	28.7
LnGrp LOS	D	D	B	D	C	C	C	C	A	E	C	C
Approach Vol, veh/h		464			574			1012			336	
Approach Delay, s/veh		35.9			36.0			22.0			33.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	50.3	13.8	17.2	33.0	26.0	6.2	24.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	17.5	21.5	5.5	27.5
Max Q Clear Time (g_c+I1), s	5.3	13.4	8.9	11.2	9.2	5.8	2.9	10.7
Green Ext Time (p_c), s	0.0	4.4	0.4	1.5	0.2	1.2	0.0	1.2

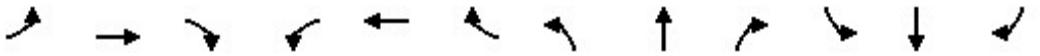
Intersection Summary	
HCM 6th Ctrl Delay	29.7
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	377	75	334	217	110	153	727	158	68	265	7
Future Volume (veh/h)	17	377	75	334	217	110	153	727	158	68	265	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	17	377	75	334	217	110	153	727	158	68	265	7
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	34	500	686	414	451	460	520	2440	947	87	1203	32
Arrive On Green	0.02	0.14	0.14	0.12	0.25	0.25	0.10	0.16	0.16	0.05	0.24	0.24
Sat Flow, veh/h	1753	3497	1560	3401	1841	1560	1753	5025	1560	1753	5035	132
Grp Volume(v), veh/h	17	377	75	334	217	110	153	727	158	68	176	96
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1700	1841	1560	1753	1675	1560	1753	1675	1817
Q Serve(g_s), s	0.9	9.3	0.0	8.6	9.1	4.8	7.3	11.5	1.5	3.5	3.8	3.8
Cycle Q Clear(g_c), s	0.9	9.3	0.0	8.6	9.1	4.8	7.3	11.5	1.5	3.5	3.8	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	34	500	686	414	451	460	520	2440	947	87	800	434
V/C Ratio(X)	0.50	0.75	0.11	0.81	0.48	0.24	0.29	0.30	0.17	0.78	0.22	0.22
Avail Cap(c_a), veh/h	107	758	801	510	562	554	520	2440	947	205	800	434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	37.1	14.9	38.5	29.1	24.1	31.8	24.3	4.1	42.3	27.5	27.5
Incr Delay (d2), s/veh	11.2	2.3	0.1	7.7	0.8	0.3	0.2	0.2	0.3	13.7	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.9	0.8	3.9	3.9	1.7	3.1	4.9	0.5	1.8	1.5	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	39.4	14.9	46.2	29.9	24.3	32.1	24.5	4.4	55.9	28.1	28.7
LnGrp LOS	D	D	B	D	C	C	C	C	A	E	C	C
Approach Vol, veh/h		469			661			1038			340	
Approach Delay, s/veh		36.0			37.2			22.6			33.9	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	48.2	15.4	17.4	31.2	26.0	6.2	26.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	28.5	13.5	19.5	17.5	21.5	5.5	27.5
Max Q Clear Time (g_c+I1), s	5.5	13.5	10.6	11.3	9.3	5.8	2.9	11.1
Green Ext Time (p_c), s	0.0	4.5	0.3	1.5	0.2	1.2	0.0	1.3

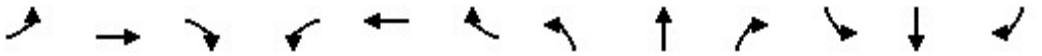
Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	525	276	152	216	39	204	343	171	212	820	39
Future Volume (veh/h)	19	525	276	152	216	39	204	343	171	212	820	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	19	525	276	152	216	39	204	343	171	212	820	39
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	37	659	512	223	429	796	246	1351	522	486	1996	95
Arrive On Green	0.02	0.19	0.19	0.07	0.23	0.23	0.05	0.09	0.09	0.28	0.41	0.41
Sat Flow, veh/h	1753	3497	1560	3401	1841	1560	1753	5025	1560	1753	4916	233
Grp Volume(v), veh/h	19	525	276	152	216	39	204	343	171	212	558	301
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1700	1841	1560	1753	1675	1560	1753	1675	1799
Q Serve(g_s), s	1.0	12.9	8.8	3.9	9.2	0.2	10.4	5.7	3.2	8.9	10.7	10.7
Cycle Q Clear(g_c), s	1.0	12.9	8.8	3.9	9.2	0.2	10.4	5.7	3.2	8.9	10.7	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	37	659	512	223	429	796	246	1351	522	486	1360	730
V/C Ratio(X)	0.52	0.80	0.54	0.68	0.50	0.05	0.83	0.25	0.33	0.44	0.41	0.41
Avail Cap(c_a), veh/h	97	797	574	321	491	848	380	1351	522	486	1360	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	34.9	12.1	41.1	30.0	4.9	41.9	32.6	28.7	26.7	19.1	19.1
Incr Delay (d2), s/veh	10.7	4.7	0.9	3.6	0.9	0.0	8.1	0.4	1.5	0.6	0.9	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.6	3.4	1.7	3.9	0.2	5.2	2.3	3.4	3.6	3.9	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	39.6	13.0	44.8	30.9	5.0	50.0	33.0	30.2	27.4	20.0	20.8
LnGrp LOS	D	D	B	D	C	A	D	C	C	C	B	C
Approach Vol, veh/h		820			407			718			1071	
Approach Delay, s/veh		31.0			33.6			37.2			21.7	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.4	28.7	10.4	21.5	17.1	41.0	6.4	25.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.8	24.2	8.5	20.5	19.5	23.5	5.0	24.0
Max Q Clear Time (g_c+I1), s	10.9	7.7	5.9	14.9	12.4	12.7	3.0	11.2
Green Ext Time (p_c), s	0.3	2.4	0.1	2.1	0.3	3.8	0.0	0.9

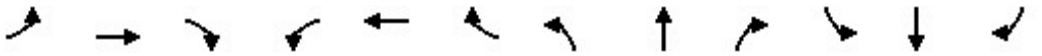
Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	538	276	203	225	47	204	343	243	222	820	39
Future Volume (veh/h)	19	538	276	203	225	47	204	343	243	222	820	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	19	538	276	203	225	47	204	343	243	222	820	39
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	37	670	517	275	463	796	246	1351	546	454	1905	90
Arrive On Green	0.02	0.19	0.19	0.08	0.25	0.25	0.05	0.09	0.09	0.26	0.39	0.39
Sat Flow, veh/h	1753	3497	1560	3401	1841	1560	1753	5025	1560	1753	4916	233
Grp Volume(v), veh/h	19	538	276	203	225	47	204	343	243	222	558	301
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1700	1841	1560	1753	1675	1560	1753	1675	1799
Q Serve(g_s), s	1.0	13.2	8.5	5.3	9.4	0.2	10.4	5.7	5.8	9.7	11.0	11.1
Cycle Q Clear(g_c), s	1.0	13.2	8.5	5.3	9.4	0.2	10.4	5.7	5.8	9.7	11.0	11.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.13
Lane Grp Cap(c), veh/h	37	670	517	275	463	796	246	1351	546	454	1298	697
V/C Ratio(X)	0.52	0.80	0.53	0.74	0.49	0.06	0.83	0.25	0.45	0.49	0.43	0.43
Avail Cap(c_a), veh/h	97	797	574	321	491	820	380	1351	546	454	1298	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.6	34.8	11.4	40.4	28.7	5.0	41.9	32.6	29.2	28.3	20.3	20.3
Incr Delay (d2), s/veh	10.7	5.1	0.9	7.3	0.8	0.0	7.7	0.4	2.3	0.8	1.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.8	3.3	2.4	4.0	0.2	5.2	2.3	5.1	3.9	4.1	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	39.9	12.3	47.7	29.5	5.0	49.6	33.0	31.5	29.1	21.3	22.2
LnGrp LOS	D	D	B	D	C	A	D	C	C	C	C	C
Approach Vol, veh/h		833			475			790			1081	
Approach Delay, s/veh		31.1			34.9			36.8			23.2	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.8	28.7	11.8	21.7	17.1	39.4	6.4	27.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.8	24.2	8.5	20.5	19.5	23.5	5.0	24.0
Max Q Clear Time (g_c+I1), s	11.7	7.8	7.3	15.2	12.4	13.1	3.0	11.4
Green Ext Time (p_c), s	0.3	2.6	0.1	2.0	0.3	3.7	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	30.4
HCM 6th LOS	C



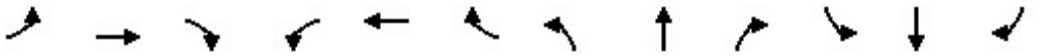
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	604	364	83	352	470	195	1016	118	365	352	17
Future Volume (veh/h)	29	604	364	83	352	470	195	1016	118	365	352	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	29	604	364	83	352	298	195	1016	62	365	352	9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	53	837	505	106	488	406	287	1141	509	439	1298	579
Arrive On Green	0.03	0.24	0.24	0.06	0.27	0.27	0.08	0.33	0.33	0.13	0.37	0.37
Sat Flow, veh/h	1753	3497	1560	1753	1810	1508	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	29	604	364	83	340	310	195	1016	62	365	352	9
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1569	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	1.2	11.7	15.1	3.4	13.0	13.2	4.1	20.3	2.1	7.7	5.2	0.3
Cycle Q Clear(g_c), s	1.2	11.7	15.1	3.4	13.0	13.2	4.1	20.3	2.1	7.7	5.2	0.3
Prop In Lane	1.00		1.00	1.00		0.96	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	53	837	505	106	471	423	287	1141	509	439	1298	579
V/C Ratio(X)	0.54	0.72	0.72	0.78	0.72	0.73	0.68	0.89	0.12	0.83	0.27	0.02
Avail Cap(c_a), veh/h	122	856	514	131	471	423	495	1141	509	439	1298	579
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.2	25.7	21.9	34.1	24.4	24.5	32.7	23.5	17.4	31.2	16.2	14.6
Incr Delay (d2), s/veh	8.4	2.9	4.8	21.5	5.4	6.5	2.8	10.5	0.5	12.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.7	5.5	2.0	5.5	5.1	1.7	9.0	0.7	3.7	1.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	28.6	26.7	55.6	29.7	30.9	35.5	34.1	17.9	43.9	16.7	14.7
LnGrp LOS	D	C	C	E	C	C	D	C	B	D	B	B
Approach Vol, veh/h		997			733			1273			726	
Approach Delay, s/veh		28.4			33.2			33.5			30.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	28.5	8.9	22.1	10.7	31.8	6.7	24.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	24.0	5.5	18.0	10.7	22.8	5.1	18.4
Max Q Clear Time (g_c+I1), s	9.7	22.3	5.4	17.1	6.1	7.2	3.2	15.2
Green Ext Time (p_c), s	0.0	1.1	0.0	0.5	0.2	1.8	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



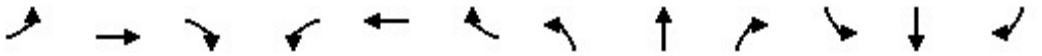
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	599	360	83	350	470	193	1016	118	365	352	17
Future Volume (veh/h)	29	599	360	83	350	470	193	1016	118	365	352	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	29	599	360	83	350	298	193	1016	62	365	352	9
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	53	834	503	106	484	406	285	1143	510	440	1302	581
Arrive On Green	0.03	0.24	0.24	0.06	0.27	0.27	0.08	0.33	0.33	0.13	0.37	0.37
Sat Flow, veh/h	1753	3497	1560	1753	1805	1512	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	29	599	360	83	339	309	193	1016	62	365	352	9
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1569	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	1.2	11.6	14.9	3.4	12.9	13.2	4.0	20.2	2.0	7.7	5.2	0.3
Cycle Q Clear(g_c), s	1.2	11.6	14.9	3.4	12.9	13.2	4.0	20.2	2.0	7.7	5.2	0.3
Prop In Lane	1.00		1.00	1.00		0.96	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	53	834	503	106	469	421	285	1143	510	440	1302	581
V/C Ratio(X)	0.54	0.72	0.72	0.78	0.72	0.73	0.68	0.89	0.12	0.83	0.27	0.02
Avail Cap(c_a), veh/h	122	857	513	131	469	421	496	1143	510	440	1302	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	25.7	21.9	34.0	24.4	24.5	32.7	23.5	17.3	31.2	16.1	14.6
Incr Delay (d2), s/veh	8.4	2.8	4.6	21.5	5.4	6.5	2.8	10.4	0.5	12.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.7	5.4	2.0	5.5	5.1	1.7	8.9	0.7	3.7	1.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	28.5	26.6	55.5	29.8	31.0	35.5	33.9	17.8	43.7	16.6	14.6
LnGrp LOS	D	C	C	E	C	C	D	C	B	D	B	B
Approach Vol, veh/h		988			731			1271			726	
Approach Delay, s/veh		28.3			33.2			33.3			30.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	28.5	8.9	22.0	10.7	31.8	6.7	24.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.5	24.0	5.5	18.0	10.7	22.8	5.1	18.4
Max Q Clear Time (g_c+I1), s	9.7	22.2	5.4	16.9	6.0	7.2	3.2	15.2
Green Ext Time (p_c), s	0.0	1.1	0.0	0.6	0.2	1.8	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	31.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



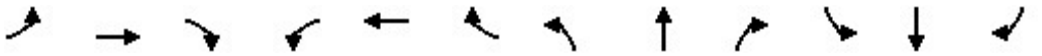
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	672	320	118	307	109	531	324	83	233	348	12
Future Volume (veh/h)	22	672	320	118	307	109	531	324	83	233	348	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	22	672	320	118	307	109	531	324	83	233	348	12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	43	801	639	149	736	256	613	1204	537	326	908	405
Arrive On Green	0.02	0.23	0.23	0.08	0.29	0.29	0.18	0.34	0.34	0.10	0.26	0.26
Sat Flow, veh/h	1753	3497	1560	1753	2544	886	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	22	672	320	118	209	207	531	324	83	233	348	12
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1681	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	0.9	13.4	11.2	4.8	7.1	7.3	11.1	4.9	2.7	4.9	6.0	0.4
Cycle Q Clear(g_c), s	0.9	13.4	11.2	4.8	7.1	7.3	11.1	4.9	2.7	4.9	6.0	0.4
Prop In Lane	1.00		1.00	1.00		0.53	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	43	801	639	149	506	487	613	1204	537	326	908	405
V/C Ratio(X)	0.51	0.84	0.50	0.79	0.41	0.43	0.87	0.27	0.15	0.72	0.38	0.03
Avail Cap(c_a), veh/h	120	860	665	156	506	487	627	1204	537	451	908	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	26.9	16.1	32.9	21.0	21.1	29.1	17.3	16.6	32.1	22.3	20.2
Incr Delay (d2), s/veh	9.0	7.0	0.6	23.0	0.5	0.6	12.0	0.5	0.6	3.3	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.8	3.5	2.9	2.7	2.7	5.1	1.8	0.9	2.0	2.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	33.9	16.7	55.9	21.5	21.7	41.1	17.9	17.2	35.4	23.5	20.3
LnGrp LOS	D	C	B	E	C	C	D	B	B	D	C	C
Approach Vol, veh/h		1014			534			938			593	
Approach Delay, s/veh		28.7			29.2			31.0			28.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	29.7	10.7	21.3	17.7	23.5	6.3	25.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.7	22.8	6.5	18.0	13.5	19.0	5.0	19.5
Max Q Clear Time (g_c+I1), s	6.9	6.9	6.8	15.4	13.1	8.0	2.9	9.3
Green Ext Time (p_c), s	0.2	1.9	0.0	1.4	0.1	1.5	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.



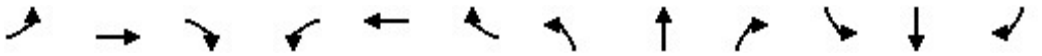
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	676	324	118	312	109	537	324	83	233	348	12
Future Volume (veh/h)	22	676	324	118	312	109	537	324	83	233	348	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	22	676	324	118	312	109	537	324	83	233	348	12
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4	4	4	4	4	4	4	4	4	4
Cap, veh/h	43	803	641	149	741	254	617	1206	538	325	905	404
Arrive On Green	0.02	0.23	0.23	0.08	0.29	0.29	0.18	0.34	0.34	0.10	0.26	0.26
Sat Flow, veh/h	1753	3497	1560	1753	2556	876	3401	3497	1560	3401	3497	1560
Grp Volume(v), veh/h	22	676	324	118	212	209	537	324	83	233	348	12
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1753	1749	1683	1700	1749	1560	1700	1749	1560
Q Serve(g_s), s	0.9	13.6	11.3	4.8	7.2	7.4	11.3	4.9	2.7	4.9	6.0	0.4
Cycle Q Clear(g_c), s	0.9	13.6	11.3	4.8	7.2	7.4	11.3	4.9	2.7	4.9	6.0	0.4
Prop In Lane	1.00		1.00	1.00		0.52	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	43	803	641	149	507	488	617	1206	538	325	905	404
V/C Ratio(X)	0.51	0.84	0.51	0.79	0.42	0.43	0.87	0.27	0.15	0.72	0.38	0.03
Avail Cap(c_a), veh/h	119	858	666	155	507	488	625	1206	538	449	905	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	27.0	16.1	33.0	21.1	21.1	29.2	17.4	16.6	32.2	22.4	20.3
Incr Delay (d2), s/veh	9.0	7.2	0.6	23.2	0.5	0.6	12.5	0.5	0.6	3.3	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	5.9	3.6	2.9	2.7	2.7	5.2	1.8	0.9	2.0	2.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	34.3	16.7	56.1	21.6	21.7	41.7	17.9	17.3	35.6	23.6	20.5
LnGrp LOS	D	C	B	E	C	C	D	B	B	D	C	C
Approach Vol, veh/h		1022			539			944			593	
Approach Delay, s/veh		28.9			29.2			31.4			28.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	29.8	10.7	21.3	17.8	23.5	6.3	25.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	9.7	22.8	6.5	18.0	13.5	19.0	5.0	19.5
Max Q Clear Time (g_c+I1), s	6.9	6.9	6.8	15.6	13.3	8.0	2.9	9.4
Green Ext Time (p_c), s	0.2	1.9	0.0	1.3	0.1	1.5	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

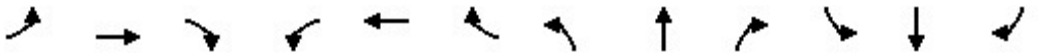
User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	398	0	0	538	125	474	0	0	456	151
Future Volume (veh/h)	0	0	398	0	0	538	125	474	0	0	456	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	0	1841	0	0	1841	1841	1841	0	0	1841	1841
Adj Flow Rate, veh/h	0	0	433	0	0	585	136	515	0	0	496	164
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	4	0	0	4	4	4	0	0	4	4
Cap, veh/h	0	0	0	0	0	0	169	4774	0	0	3027	969
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.31	0.00	0.00	0.27	0.27
Sat Flow, veh/h		0			0		1753	5191	0	0	3933	1206
Grp Volume(v), veh/h		0.0			0.0		136	515	0	0	439	221
Grp Sat Flow(s),veh/h/ln							1753	1675	0	0	1675	1624
Q Serve(g_s), s							6.9	6.6	0.0	0.0	9.1	9.4
Cycle Q Clear(g_c), s							6.9	6.6	0.0	0.0	9.1	9.4
Prop In Lane							1.00		0.00	0.00		0.74
Lane Grp Cap(c), veh/h							169	4774	0	0	2692	1305
V/C Ratio(X)							0.80	0.11	0.00	0.00	0.16	0.17
Avail Cap(c_a), veh/h							205	4774	0	0	2692	1305
HCM Platoon Ratio							0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(I)							0.96	0.96	0.00	0.00	0.95	0.95
Uniform Delay (d), s/veh							42.7	3.8	0.0	0.0	9.8	10.0
Incr Delay (d2), s/veh							16.7	0.0	0.0	0.0	0.1	0.3
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							3.8	0.0	0.0	0.0	2.2	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							59.5	3.8	0.0	0.0	10.0	10.2
LnGrp LOS							E	A	A	A	A	B
Approach Vol, veh/h								651			660	
Approach Delay, s/veh								15.5			10.0	
Approach LOS								B			B	

Timer - Assigned Phs	2		5	6								
Phs Duration (G+Y+Rc), s	90.0		13.2	76.8								
Change Period (Y+Rc), s	4.5		4.5	4.5								
Max Green Setting (Gmax), s	34.5		10.5	19.5								
Max Q Clear Time (g_c+I1), s	8.6		8.9	11.4								
Green Ext Time (p_c), s	3.3		0.0	2.5								

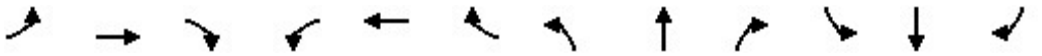
Intersection Summary												
HCM 6th Ctrl Delay		12.7										
HCM 6th LOS		B										



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	398	0	0	557	125	481	0	0	507	166
Future Volume (veh/h)	0	0	398	0	0	557	125	481	0	0	507	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	0	1841	0	0	1841	1841	1841	0	0	1841	1841
Adj Flow Rate, veh/h	0	0	433	0	0	605	136	523	0	0	551	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	4	0	0	4	4	4	0	0	4	4
Cap, veh/h	0	0	0	0	0	0	169	4774	0	0	3032	965
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.31	0.00	0.00	0.27	0.27
Sat Flow, veh/h		0			0		1753	5191	0	0	3940	1201
Grp Volume(v), veh/h		0.0			0.0		136	523	0	0	487	244
Grp Sat Flow(s),veh/h/ln							1753	1675	0	0	1675	1625
Q Serve(g_s), s							6.9	6.7	0.0	0.0	10.1	10.4
Cycle Q Clear(g_c), s							6.9	6.7	0.0	0.0	10.1	10.4
Prop In Lane							1.00		0.00	0.00		0.74
Lane Grp Cap(c), veh/h							169	4774	0	0	2692	1305
V/C Ratio(X)							0.80	0.11	0.00	0.00	0.18	0.19
Avail Cap(c_a), veh/h							205	4774	0	0	2692	1305
HCM Platoon Ratio							0.33	0.33	1.00	1.00	0.33	0.33
Upstream Filter(I)							0.96	0.96	0.00	0.00	0.91	0.91
Uniform Delay (d), s/veh							42.7	3.8	0.0	0.0	10.2	10.3
Incr Delay (d2), s/veh							16.7	0.0	0.0	0.0	0.1	0.3
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							3.8	0.0	0.0	0.0	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							59.5	3.9	0.0	0.0	10.3	10.6
LnGrp LOS							E	A	A	A	B	B
Approach Vol, veh/h								659			731	
Approach Delay, s/veh								15.3			10.4	
Approach LOS								B			B	

Timer - Assigned Phs	2		5	6								
Phs Duration (G+Y+Rc), s	90.0		13.2	76.8								
Change Period (Y+Rc), s	4.5		4.5	4.5								
Max Green Setting (Gmax), s	34.5		10.5	19.5								
Max Q Clear Time (g_c+I1), s	8.7		8.9	12.4								
Green Ext Time (p_c), s	3.3		0.0	2.5								

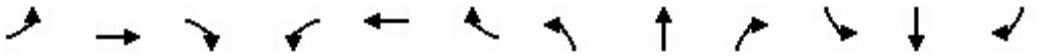
Intersection Summary		
HCM 6th Ctrl Delay	12.8	
HCM 6th LOS	B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	531	0	0	255	159	396	0	0	1052	266
Future Volume (veh/h)	0	0	531	0	0	255	159	396	0	0	1052	266
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	0	1841	0	0	1841	1841	1841	0	0	1841	1841
Adj Flow Rate, veh/h	0	0	577	0	0	277	173	430	0	0	1143	289
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	4	0	0	4	4	4	0	0	4	4
Cap, veh/h	0	0	0	0	0	0	207	4774	0	0	3127	791
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.95	0.00	0.00	0.26	0.26
Sat Flow, veh/h		0			0		1753	5191	0	0	4164	1011
Grp Volume(v), veh/h		0.0			0.0		173	430	0	0	958	474
Grp Sat Flow(s),veh/h/ln							1753	1675	0	0	1675	1659
Q Serve(g_s), s							8.7	0.4	0.0	0.0	21.1	21.1
Cycle Q Clear(g_c), s							8.7	0.4	0.0	0.0	21.1	21.1
Prop In Lane							1.00		0.00	0.00		0.61
Lane Grp Cap(c), veh/h							207	4774	0	0	2620	1297
V/C Ratio(X)							0.84	0.09	0.00	0.00	0.37	0.37
Avail Cap(c_a), veh/h							236	4774	0	0	2620	1297
HCM Platoon Ratio							1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)							0.95	0.95	0.00	0.00	0.86	0.86
Uniform Delay (d), s/veh							38.8	0.1	0.0	0.0	15.1	15.1
Incr Delay (d2), s/veh							19.6	0.0	0.0	0.0	0.3	0.7
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							4.7	0.0	0.0	0.0	9.4	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							58.4	0.2	0.0	0.0	15.4	15.8
LnGrp LOS							E	A	A	A	B	B
Approach Vol, veh/h								603			1432	
Approach Delay, s/veh								16.9			15.5	
Approach LOS								B			B	

Timer - Assigned Phs	2		5	6
Phs Duration (G+Y+Rc), s	90.0		15.1	74.9
Change Period (Y+Rc), s	4.5		4.5	4.5
Max Green Setting (Gmax), s	42.9		12.1	26.3
Max Q Clear Time (g_c+I1), s	2.4		10.7	23.1
Green Ext Time (p_c), s	2.9		0.1	2.3

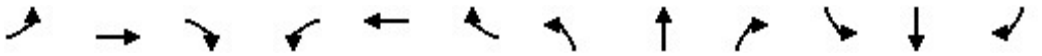
Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	531	0	0	306	159	417	0	0	1092	277
Future Volume (veh/h)	0	0	531	0	0	306	159	417	0	0	1092	277
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	0	1841	0	0	1841	1841	1841	0	0	1841	1841
Adj Flow Rate, veh/h	0	0	577	0	0	333	173	453	0	0	1187	301
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	4	0	0	4	4	4	0	0	4	4
Cap, veh/h	0	0	0	0	0	0	207	4774	0	0	3125	792
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.95	0.00	0.00	0.26	0.26
Sat Flow, veh/h		0			0		1753	5191	0	0	4161	1013
Grp Volume(v), veh/h		0.0			0.0		173	453	0	0	995	493
Grp Sat Flow(s),veh/h/ln							1753	1675	0	0	1675	1658
Q Serve(g_s), s							8.7	0.4	0.0	0.0	22.0	22.0
Cycle Q Clear(g_c), s							8.7	0.4	0.0	0.0	22.0	22.0
Prop In Lane							1.00		0.00	0.00		0.61
Lane Grp Cap(c), veh/h							207	4774	0	0	2620	1297
V/C Ratio(X)							0.84	0.09	0.00	0.00	0.38	0.38
Avail Cap(c_a), veh/h							236	4774	0	0	2620	1297
HCM Platoon Ratio							1.00	1.00	1.00	1.00	0.33	0.33
Upstream Filter(I)							0.94	0.94	0.00	0.00	0.84	0.84
Uniform Delay (d), s/veh							38.8	0.1	0.0	0.0	15.4	15.4
Incr Delay (d2), s/veh							19.4	0.0	0.0	0.0	0.4	0.7
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							4.7	0.0	0.0	0.0	9.8	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh							58.2	0.2	0.0	0.0	15.8	16.1
LnGrp LOS							E	A	A	A	B	B
Approach Vol, veh/h								626			1488	
Approach Delay, s/veh								16.2			15.9	
Approach LOS								B			B	

Timer - Assigned Phs	2		5	6								
Phs Duration (G+Y+Rc), s	90.0		15.1	74.9								
Change Period (Y+Rc), s	4.5		4.5	4.5								
Max Green Setting (Gmax), s	42.9		12.1	26.3								
Max Q Clear Time (g_c+I1), s	2.4		10.7	24.0								
Green Ext Time (p_c), s	3.0		0.1	1.8								

Intersection Summary		
HCM 6th Ctrl Delay	16.0	
HCM 6th LOS	B	



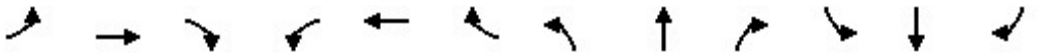
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	244	38	94	100	0	94	0	277	34	24	659	162
Future Volume (veh/h)	244	38	94	100	0	94	0	277	34	24	659	162
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	0	1841	0	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	265	41	0	109	0	102	0	301	37	26	716	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	0	4	0	4	4	4	4	4
Cap, veh/h	361	195		0	0	0	0	1440	173	1453	2777	
Arrive On Green	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.14	0.26	0.00
Sat Flow, veh/h	3401	1841	1560		0		0	4712	546	3401	3497	2745
Grp Volume(v), veh/h	265	41	0		0.0		0	220	118	26	716	0
Grp Sat Flow(s),veh/h/ln	1700	1841	1560				0	1675	1742	1700	1749	1373
Q Serve(g_s), s	6.8	1.8	0.0				0.0	4.3	4.5	0.6	14.6	0.0
Cycle Q Clear(g_c), s	6.8	1.8	0.0				0.0	4.3	4.5	0.6	14.6	0.0
Prop In Lane	1.00		1.00				0.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	361	195					0	1061	552	1453	2777	
V/C Ratio(X)	0.73	0.21					0.00	0.21	0.21	0.02	0.26	
Avail Cap(c_a), veh/h	661	358					0	1061	552	1453	2777	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	39.0	36.8	0.0				0.0	22.5	22.5	22.4	12.2	0.0
Incr Delay (d2), s/veh	2.9	0.5	0.0				0.0	0.4	0.9	0.0	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(50%),veh/ln	2.9	0.8	0.0				0.0	1.7	1.9	0.2	6.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	37.3	0.0				0.0	22.9	23.4	22.4	12.4	0.0
LnGrp LOS	D	D					A	C	C	C	B	
Approach Vol, veh/h		306						338			742	
Approach Delay, s/veh		41.3						23.1			12.7	
Approach LOS		D						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	43.0	33.0		14.0		76.0						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	28.5		17.5		40.5						
Max Q Clear Time (g_c+I1), s	2.6	6.5		8.8		16.6						
Green Ext Time (p_c), s	0.0	2.1		0.8		5.3						

Intersection Summary			
HCM 6th Ctrl Delay		21.6	
HCM 6th LOS		C	

Notes

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



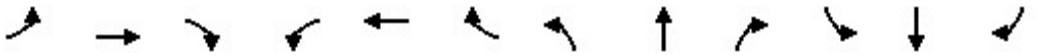
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	249	38	94	100	0	95	0	278	34	26	662	208
Future Volume (veh/h)	249	38	94	100	0	95	0	278	34	26	662	208
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	0	1841	0	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	271	41	0	109	0	103	0	302	37	28	720	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	0	4	0	4	4	4	4	4
Cap, veh/h	367	199		0	0	0	0	1440	172	1447	2770	
Arrive On Green	0.11	0.11	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.14	0.26	0.00
Sat Flow, veh/h	3401	1841	1560		0		0	4714	544	3401	3497	2745
Grp Volume(v), veh/h	271	41	0		0.0		0	221	118	28	720	0
Grp Sat Flow(s),veh/h/ln	1700	1841	1560				0	1675	1743	1700	1749	1373
Q Serve(g_s), s	7.0	1.8	0.0				0.0	4.3	4.5	0.6	14.7	0.0
Cycle Q Clear(g_c), s	7.0	1.8	0.0				0.0	4.3	4.5	0.6	14.7	0.0
Prop In Lane	1.00		1.00				0.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	367	199					0	1061	552	1447	2770	
V/C Ratio(X)	0.74	0.21					0.00	0.21	0.21	0.02	0.26	
Avail Cap(c_a), veh/h	661	358					0	1061	552	1447	2770	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	0.68	0.68	0.00
Uniform Delay (d), s/veh	38.9	36.6	0.0				0.0	22.5	22.5	22.5	12.3	0.0
Incr Delay (d2), s/veh	2.9	0.5	0.0				0.0	0.4	0.9	0.0	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(50%),veh/ln	3.0	0.8	0.0				0.0	1.7	1.9	0.2	6.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	37.1	0.0				0.0	22.9	23.4	22.5	12.5	0.0
LnGrp LOS	D	D					A	C	C	C	B	
Approach Vol, veh/h		312						339			748	
Approach Delay, s/veh		41.2						23.1			12.9	
Approach LOS		D						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	42.8	33.0		14.2		75.8						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	7.5	28.5		17.5		40.5						
Max Q Clear Time (g_c+I1), s	2.6	6.5		9.0		16.7						
Green Ext Time (p_c), s	0.0	2.1		0.8		5.3						

Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

Notes

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



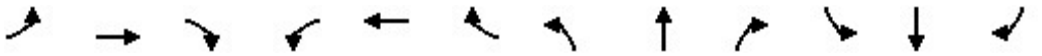
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	159	98	127	0	157	0	240	88	149	788	560
Future Volume (veh/h)	151	159	98	127	0	157	0	240	88	149	788	560
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	0	1841	0	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	164	173	0	138	0	171	0	261	96	162	857	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	0	4	0	4	4	4	4	4
Cap, veh/h	424	229		0	0	0	0	1190	410	1370	2712	
Arrive On Green	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.13	0.26	0.00
Sat Flow, veh/h	3401	1841	1560		0		0	3857	1270	3401	3497	2745
Grp Volume(v), veh/h	164	173	0		0.0		0	235	122	162	857	0
Grp Sat Flow(s),veh/h/ln	1700	1841	1560				0	1675	1612	1700	1749	1373
Q Serve(g_s), s	4.0	8.2	0.0				0.0	4.6	5.0	3.8	17.9	0.0
Cycle Q Clear(g_c), s	4.0	8.2	0.0				0.0	4.6	5.0	3.8	17.9	0.0
Prop In Lane	1.00		1.00				0.00		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	424	229					0	1080	520	1370	2712	
V/C Ratio(X)	0.39	0.75					0.00	0.22	0.23	0.12	0.32	
Avail Cap(c_a), veh/h	737	399					0	1080	520	1370	2712	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	0.27	0.27	0.00
Uniform Delay (d), s/veh	36.2	38.1	0.0				0.0	22.2	22.3	24.9	14.2	0.0
Incr Delay (d2), s/veh	0.6	5.0	0.0				0.0	0.5	1.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	3.9	0.0				0.0	1.8	2.0	1.5	8.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	43.0	0.0				0.0	22.7	23.4	24.9	14.2	0.0
LnGrp LOS	D	D					A	C	C	C	B	
Approach Vol, veh/h		337						357			1019	
Approach Delay, s/veh		40.0						22.9			15.9	
Approach LOS		D						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	40.8	33.5		15.7		74.3						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	14.5	20.5		19.5		39.5						
Max Q Clear Time (g_c+I1), s	5.8	7.0		10.2		19.9						
Green Ext Time (p_c), s	0.3	1.8		1.0		6.1						

Intersection Summary												
HCM 6th Ctrl Delay			22.1									
HCM 6th LOS			C									

Notes

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	159	98	127	0	159	0	243	88	151	790	596
Future Volume (veh/h)	167	159	98	127	0	159	0	243	88	151	790	596
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1841	0	1841	0	1841	1841	1841	1841	1841
Adj Flow Rate, veh/h	182	173	0	138	0	173	0	264	96	164	859	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	0	4	0	4	4	4	4	4
Cap, veh/h	426	230		0	0	0	0	1192	406	1370	2710	
Arrive On Green	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.32	0.32	0.13	0.26	0.00
Sat Flow, veh/h	3401	1841	1560		0		0	3868	1261	3401	3497	2745
Grp Volume(v), veh/h	182	173	0		0.0		0	237	123	164	859	0
Grp Sat Flow(s),veh/h/ln	1700	1841	1560				0	1675	1614	1700	1749	1373
Q Serve(g_s), s	4.5	8.2	0.0				0.0	4.6	5.0	3.8	17.9	0.0
Cycle Q Clear(g_c), s	4.5	8.2	0.0				0.0	4.6	5.0	3.8	17.9	0.0
Prop In Lane	1.00		1.00				0.00		0.78	1.00		1.00
Lane Grp Cap(c), veh/h	426	230					0	1078	519	1370	2710	
V/C Ratio(X)	0.43	0.75					0.00	0.22	0.24	0.12	0.32	
Avail Cap(c_a), veh/h	737	399					0	1078	519	1370	2710	
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00	0.18	0.18	0.00
Uniform Delay (d), s/veh	36.4	38.0	0.0				0.0	22.3	22.4	25.0	14.2	0.0
Incr Delay (d2), s/veh	0.7	4.9	0.0				0.0	0.5	1.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.9	0.0				0.0	1.9	2.0	1.5	8.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	42.9	0.0				0.0	22.7	23.5	25.0	14.3	0.0
LnGrp LOS	D	D					A	C	C	C	B	
Approach Vol, veh/h		355						360			1023	
Approach Delay, s/veh		39.9						23.0			16.0	
Approach LOS		D						C			B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	40.8	33.5		15.8		74.2						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	14.5	20.5		19.5		39.5						
Max Q Clear Time (g_c+I1), s	5.8	7.0		10.2		19.9						
Green Ext Time (p_c), s	0.3	1.9		1.1		6.1						

Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									

Notes

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

HCS Two-Way Stop-Control Report

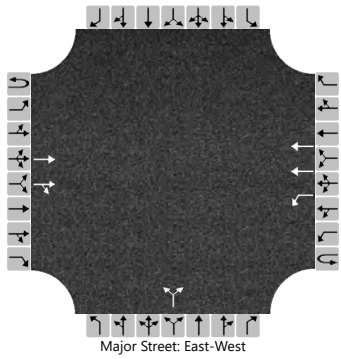
General Information

Analyst	DJL
Agency/Co.	Stantec
Date Performed	10/23/2022
Analysis Year	2040
Time Analyzed	AM Peak Hour
Intersection Orientation	East-West
Project Description	2150 Hillcrest Dr

Site Information

Intersection	Hillcrest Dr/Project Dwy
Jurisdiction	Thousand Oaks
East/West Street	Hillcrest Dr
North/South Street	Project Dwy
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume (veh/h)			568	16	0	4	574			87		10				
Percent Heavy Vehicles (%)					4	4				4		4				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage			Left Only							2						

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.18				6.88		6.98				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.24				3.54		3.34				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						4					97					
Capacity, c (veh/h)						973					475					
v/c Ratio						0.00					0.20					
95% Queue Length, Q_{95} (veh)						0.0					0.8					
Control Delay (s/veh)						8.7					14.5					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)						0.1				14.5						
Approach LOS						A				B						

HCS Two-Way Stop-Control Report

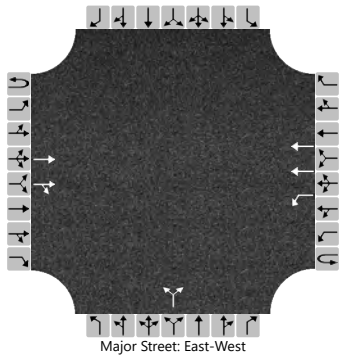
General Information

Analyst	DJL
Agency/Co.	Stantec
Date Performed	10/23/2022
Analysis Year	2040
Time Analyzed	PM Peak Hour
Intersection Orientation	East-West
Project Description	2150 Hillcrest Dr

Site Information

Intersection	Hillcrest Dr/Project Dwy
Jurisdiction	Thousand Oaks
East/West Street	Hillcrest Dr
North/South Street	Project Dwy
Peak Hour Factor	1.00
Analysis Time Period (hrs)	1.00

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	2	0	0	1	2	0		0	1	0		0	0	0
Configuration			T	TR		L	T				LR					
Volume (veh/h)			908	43	0	11	407			68		8				
Percent Heavy Vehicles (%)					4	4				4		4				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type | Storage	Left Only								2							

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.5		6.9				
Critical Headway (sec)						4.18				6.88		6.98				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.24				3.54		3.34				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11					76					
Capacity, c (veh/h)						706					329					
v/c Ratio						0.02					0.23					
95% Queue Length, Q_{95} (veh)						0.0					0.9					
Control Delay (s/veh)						10.2					19.2					
Level of Service (LOS)						B					C					
Approach Delay (s/veh)					0.3				19.2							
Approach LOS					A				C							