Appendix M
Transportation Impact Study

ESA

Jacqueline De La Rocha

From: Jacqueline De La Rocha
Sent: Thursday, July 14, 2022 12:29 PM
To: Jacqueline De La Rocha
Subject: FW: Crossings Campus Transportation Study

From: Maximous, Andrew <Andrew.Maximous@culvercity.org>
Sent: Thursday, July 14, 2022 11:13 AM
To: Anderson, Jeff <Jeff.Anderson@culvercity.org>
Cc: Romo, Sammy <sammy.romo@culvercity.org>; Hungerford, Gabriel @ Los Angeles <GHungerford@trammellcrow.com>; Mike Harden <MHarden@esassoc.com>; Jeremiah LaRose <J.LaRose@fehrandpeers.com>; Vivian Lee <V.Lee@fehrandpeers.com>
Subject: RE: Crossings Campus Transportation Study

Jeff,

This email serves as approval from the Mobility & Traffic Engineering Division on the Transportation Impact Study, dated July 2022, for the Crossings Campus Project located at 8825 National Boulevard.

+Andrew Maximous, P.E., T.E.
Mobility & Traffic Engineering Manager
City of Culver City
310.253.5628
andrew.maximous@culvercity.org

From: Vivian Lee <V.Lee@fehrandpeers.com>
Sent: Wednesday, July 13, 2022 4:22 PM
To: Maximous, Andrew <Andrew.Maximous@culvercity.org>; Anderson, Jeff <Jeff.Anderson@culvercity.org>
Cc: Romo, Sammy <sammy.romo@culvercity.org>; Hungerford, Gabriel @ Los Angeles <GHungerford@trammellcrow.com>; Jeremiah LaRose <J.LaRose@fehrandpeers.com>
Subject: RE: Crossings Campus Transportation Study

Thanks Andrew,

The main report has been updated to reflect the updates to appendix F, referring to the three alternatives instead of one.

Let me know if you need anything else from our end.

Vivian

CITY OF LOS ANGELES
CALIFORNIA

Seleta J. Reynolds
GENERAL MANAGER

ERIC GARCETTI
MAYOR

DEPARTMENT OF TRANSPORTATION
100 S. Main St., 10th Floor
LOS ANGELES, CA 90012
(213) 972-8470
FAX (213) 972-8410

8876 W Venice Bl
LADOT Case No. CEN22-53772

July 15, 2022

Andrew Maximous, Mobility & Traffic Engineering Manager
Public Works Department, Culver City
9770 Culver Boulevard
Culver City, CA 90232

Subject: **TRANSPORTATION ASSESSMENT FOR THE PROPOSED OFFICE PROJECT AT 8876 WEST VENICE BOULEVARD**

Dear Mr. Maximous,

The City of Los Angeles Department of Transportation (LADOT) appreciates the opportunity to review and comment on the transportation assessment prepared by Fehr and Peers, dated June 2022, for the proposed office project located at 8825 West National Boulevard and 8771 West Washington Boulevard in Culver City and 8876, 8884, 8886, and 8888 West Venice Boulevard and 8827 and 8829 West National Boulevard in Culver City and Los Angeles within the West Adams – Baldwin Hills – Leimert Community Plan area and the South Los Angeles Area Planning Commission (APC). The project is proposed on land parcels that are under the jurisdiction of the City of Culver City. Nonetheless, the transportation assessment included an analysis following portions of the LADOT Transportation Assessment Guidelines (TAG).
In compliance with Senate Bill (SB) 743 and the California Environmental Quality Act (CEQA), a vehicle miles traveled (VMT) analysis is required to identify the project's ability to promote the reduction of green-house gas emissions, the access to diverse land uses, and the development of multi-modal networks. The significance of a project's impact in this regard is measured against the VMT thresholds established in LADOT's Transportation Assessment Guidelines (TAG). However, this project followed the guidelines of the lead agency, the City of Culver City, in its VMT analysis and thus a VMT analysis per the LADOT TAG was not reviewed for this project.

DISCUSSION AND FINDINGS

A. Project Description

The project proposes to replace two warehouse buildings and a retail furniture building with two, four- to five-story buildings on the block bounded by National Boulevard to the west, Venice Boulevard to the north, and Washington Boulevard to the south. The development will provide 536,000 square feet of office space, an internal courtyard, a total of 175 (long-term and short-term) bicycle parking spaces, and 1,216 vehicle parking spaces in two connecting three-level subterranean parking garages, one below each proposed building. The development will be

accessed via a two-way right turn only commercial driveway along National Boulevard, a two-way right turn only commercial driveway along Venice Boulevard, and a two-way right turn only driveway along Washington Boulevard as illustrated in **Attachment A**. The Venice Boulevard and National Boulevard driveways will also provide access to loading docks and trash areas. A passenger loading zone is proposed via a new curb cut out near the Venice Boulevard driveway. Separate entrances would provide access for pedestrians along Venice Boulevard and National Boulevard. The project is expected to be completed by 2026.

B. Freeway Safety Analysis

Per the Interim Guidance for Freeway Safety Analysis memorandum issued by LADOT on May 1, 2020 to address Caltrans safety concerns on freeways, the study addresses the project's effects on vehicle queuing on freeway off-ramps. Such an evaluation measures the project's potential to lengthen a forecasted off-ramp queue and create speed differentials between vehicles exiting the freeway off-ramps and vehicles operating on the freeway mainline.

The evaluation identified the number of project trips expected to be added to nearby freeway off-ramps serving the project site. It was determined that project traffic at the I-10 westbound off-ramps to Robertson Boulevard, Venice Boulevard, and Washington Boulevard will exceed 25 peak hour trips. However, queues would not exceed the ramp storage lengths. Therefore, a freeway ramp analysis is not required.

C. CEQA Screening Threshold

The analysis included discussion of the transportation impact thresholds:

T-1 Conflicting with plans, programs, ordinances, or policies

T-3 Substantially increasing hazards due to a geometric design feature or incompatible use.

The assessment determined that the project would **not** have a significant transportation impact under Thresholds T-1 and T-3.

D. Access and Circulation

During preparation of the new CEQA guidelines, the State's Office of Planning and Research stressed that lead agencies can continue to apply traditional operational analysis requirements to inform land use decisions provided that such analyses were outside of the CEQA process. The authority for requiring non-CEQA transportation analysis and requiring improvements to address potential circulation deficiencies, lies in the City of Los Angeles' Site Plan Review authority as established in Section 16.05 of the LAMC. Therefore, LADOT continues to require and review a project's site access, circulation, and operational plan to determine if any access enhancements, transit amenities, intersection improvements, traffic signal upgrades, neighborhood traffic calming, or other improvements are needed. In accordance with this authority, the project has completed a circulation analysis using a "level of service" screening methodology that indicates that the trips generated by the proposed development will not likely result in adverse circulation conditions at several locations. Access to the project will be provided along National Boulevard, Venice Boulevard, and Washington Boulevard. The project is considering an alternate access option that proposes the installation of a traffic signal at the Venice Boulevard driveway, a two-way right turn only driveway along National Boulevard, and emergency access only from Washington Boulevard. The project circulation analysis includes circulation conditions for the project with and without the proposed project access alternative under consideration. LADOT has reviewed this analysis and determined that it adequately discloses operational concerns. A copy

of the circulation analysis table that summarizes these potential deficiencies is provided as **Attachment B** to this report. It should be noted that seven of the study intersections used for this analysis (Ivy Station and National Boulevard, Robertson Boulevard and Washington Boulevard, Landmark Street and Washington Boulevard, National Boulevard and Washington Boulevard, Wesley Street and Washington Boulevard, Helms Avenue and Washington Boulevard, La Cienega Avenue and Washington Boulevard) are in City of Culver City right-of-way.

PROJECT REQUIREMENTS

Non-CEQA Related Requirements and Considerations

To comply with transportation and mobility goals and provisions of adopted City plans and ordinances, the applicant should be required to implement the following:

1. Transportation Demand Management Plan

   The project proposes to implement a Transportation Demand Management (TDM) program to reduce the number of vehicle trips generated by the site. The purpose of a TDM program should be to reduce the use of single occupant vehicles (SOV) by increasing the number of trips by walking, bicycle, carpool, vanpool and transit. The design of the development should contribute to minimizing traffic impacts by emphasizing non-auto modes of transportation. Also, a pedestrian-friendly project with safe and walkable sidewalks should be included in the overall design of this office project. The TDM plan should include a one-time fixed-fee contribution of **$75,000** to be deposited into the City of Los Angeles' Bicycle Plan Trust Fund to implement bicycle improvements within the area of the proposed project.

2. Bike Lane on Venice Boulevard

   LADOT recommends improving Venice Boulevard to provide a Northbound Bike Lane at sidewalk level within the existing right-of-way along the project frontage. All improvements, enhancements, and associated bicycle lane work within the City of Los Angeles must be **guaranteed** through Bureau of Engineering's (BOE) B-Permit process, prior to the issuance of any building permits and **completed** prior to the issuance of any certificates of occupancy. Temporary certificates of occupancy may be granted in the event of any delay through no fault of the applicant, provided that, in each case, the applicant has demonstrated reasonable efforts and due diligence to the satisfaction of LADOT. Prior to setting the bond amount, BOE shall require that the developer's engineer or contractor email LADOT's B-Permit Coordinator at ladot.planprocessing@lacity.org to arrange a pre-design meeting to finalize the proposed design needed for the project. All costs associated with the design and installation of the improvement are the responsibility of the applicant.

   Should the improvement be found to be infeasible, an equivalent improvement measure may be substituted to the satisfaction of LADOT.

3. New Traffic Signal

   The transportation analysis is considering the installation of a new traffic signal at the Venice Boulevard driveway on the eastern edge of the Project site. Any proposed signal installation is subject to final approval by LADOT. The applicant should prepare a complete Traffic Signal Warrant Analysis of the project driveway along Venice Boulevard for review by LADOT's Hollywood-Wilshire District Office for final determination on the need for a traffic signal at this

location. The satisfaction of a traffic signal warrant does not itself require the installation of a signal. Other factors relative to safety, traffic flow, signal spacing, coordination, etc. should be considered. If LADOT makes the determination that a traffic signal is warranted and needed at the intersection, then the applicant would be responsible for the full cost to design and install the new signal. All associated traffic signal work within the City of Los Angeles must be **guaranteed** by the applicant through Bureau of Engineering's (BOE) B-Permit process. Prior to setting the bond amount, BOE shall require that the developer's engineer or contractor email LADOT's B-Permit Coordinator at ladot.planprocessing@lacity.org to arrange a pre-design meeting to finalize the proposed design needed for the project. All costs associated with the design and installation of the new traffic signal are the responsibility of the applicant.

Should LADOT determine that a traffic signal is not warranted, the applicant should install tactile warning strips on the northeast and southeast street corners of the project driveway and Venice Boulevard if applicable.

4. Highway Dedication and Street Widening Requirements

Per the Mobility Element of the General Plan (within the City of Los Angeles), **National Boulevard**, a Modified Avenue II, would require a 33-foot half-width roadway within a 45-foot half-width right-of-way and **Venice Boulevard**, a Modified Boulevard II, would require a 54-foot half-width roadway within an 80-foot half-width right-of-way. The applicant should check with the Bureau of Engineering's Land Development Group to determine if there are any other applicable highway dedication, street widening and/or sidewalk requirements for this project.

5. Project Access and Circulation

The conceptual site plan for the project within the jurisdiction of the City of Los Angeles (see **Attachment A**) is acceptable to LADOT. The project would be accessed via a two-way right turn only commercial driveway along National Boulevard, a two-way right turn only commercial driveway along Venice Boulevard, and a two-way right turn only driveway along Washington Boulevard. The project is also considering an alternate access option with the installation of a new traffic signal at the driveway along Venice Boulevard, a two-way right-turn only driveway along National Boulevard, and emergency access only from Washington Boulevard. Access to on site commercial loading docks and trash areas will be provided via the driveways along National Boulevard and Venice Boulevard. Separate entrances would provide access for pedestrians along Venice Boulevard and National Boulevard. A curbside passenger and shuttle loading zone is proposed immediately in front of the Venice Boulevard driveway and would require a new curb cut. Review and approval of the passenger loading zone (PLZ) should be coordinated with LADOT's Parking Meters Division, 555 Ramirez Street, Space 315 at 213-473-8270.

Review of this study does not constitute approval of the dimensions for any new proposed driveway. Review and approval of the driveway should be coordinated with LADOT's Citywide Planning Coordination Section (201 North Figueroa Street, 5th Floor, Room 550, at 213-482-7024). In order to minimize and prevent last minute building design changes, the applicant should contact LADOT for driveway width and internal circulation requirements prior to the commencement of building or parking layout design. The applicant should check with City Planning regarding the project's driveway placement and design.

6. Worksite Traffic Control Requirements
For any construction traffic management that takes place within the City of Los Angeles, LADOT recommends that a construction work site traffic control plan be submitted to LADOT's Citywide Temporary Traffic Control Section or Permit Plan Review Section for review and approval prior to the start of any construction work. Refer to http://ladot.lacity.org/businesses/temporary-traffic-control-plans to determine which section to coordinate review of the work site traffic control plan. The plan should show the location of any roadway or sidewalk closures, traffic detours, haul routes, hours of operation, protective devices, warning signs and access to abutting properties. LADOT also recommends that all construction related truck traffic be restricted to off-peak hours to the extent feasible.

7. Development Review Fees
Section 19.15 of the LAMC identifies specific fees for traffic study review, condition clearance, and permit issuance. The applicant shall comply with any applicable fees per this ordinance.

If you have any questions, please call me at 213-972-8482.

Sincerely,

Wes Pringle
Transportation Engineer

Attachments

K:\Letters\2022\ CEN22-53772_8876 W Venice Bl Office project_ltr.docx

c: Hakeem Parke-Davis, City of LA Council District 10
Hokchi Chiu, City of LA Central District, BOE
Bob Babajian, City of LA City Planning
William Lamborn, LA City Planning
Bhuvan Bajaj, City of LA Hollywood-Wilshire District, DOT
Taimour Tanavoli, City of LA Case Management Office, DOT
Diana Chang, Culver City
Jeremiah LaRose, Fehr and Peers

Attachment A
CEN22-53772_8876 W Venice Bl

Source: Trammell Crow Company, 2021.

Figure 2
Site Plan

TABLE 11
INTERSECTION LEVELS OF SERVICE AND DELAY
FUTURE BASE (2026) + PROJECT CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Future (2026)		Future (2026) + Project	
				Delay [a]	LOS	Delay [a]	LOS
1	S Robertson Blvd & Venice Blvd & Exposition Blvd	Signal	AM	218	F	239	F
			PM	126	F	128	F
2	National Blvd & Venice Blvd	Signal	AM	31	C	50	D
			PM	41	D	79	E
3	Helms Ave & Venice Blvd	Signal	AM	5	A	5	A
			PM	20	B	28	C
4	Cattaraugus Ave & Venice Blvd	Signal	AM	13	B	13	B
			PM	16	B	17	B
5	La Cienega Blvd & Venice Blvd	Signal	AM	52	D	52	D
			PM	71	E	77	E
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	6	A	5	A
			PM	6	A	8	A
7	Higuera St/Robertson Blvd & Washington Blvd	Signal	AM	35	C	41	D
			PM	44	D	46	D
8	Landmark St & Washington Blvd	Signal	AM	10	B	10	B
			PM	10	A	10	B
9	National Blvd & Washington Blvd	Signal	AM	45	D	47	D
			PM	41	D	55	D
10	Wesley St/Driveway & Washington Blvd	Signal	AM	22	C	39	D
			PM	11	B	14	B
11	Helms Ave & Washington Blvd	Signal	AM	7	A	7	A
			PM	4	A	4	A
12	McManus Ave/La Cienega Ave & Washington Blvd	Signal	AM	30	C	45	D
			PM	110	F	131	F
13	Fairfax Ave & Washington Blvd	Signal	AM	237	F	235	F
			PM	152	F	152	F

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

Crossings Campus Project

Transportation Impact Study

Prepared for:
Culver Crossings Properties, LLC

July 2022

LA21-3287

FEHR PEERS

Table of Contents

Appendices

Appendix A: Memorandum of Understanding (MOU)

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1. Introduction

This report summarizes the results of the transportation study conducted by Fehr & Peers to evaluate the potential transportation impacts of the Crossings Campus development ("Project") in the Cities of Culver City and Los Angeles, California.

Project Description

The proposed Project is located at 8825 National Boulevard and 8771 Washington Boulevard ("Project Site") in Culver City, California ("City") and 8876, 8884, 8886, and 8888 Venice Boulevard and 8827 and 8829 National Boulevard in Culver City and Los Angeles, California. **Figure 1** illustrates the location of the proposed Project in relation to the surrounding streets.

The Project involves the development of two adjacent parcels, one in the City of Culver City and the other in the City of Los Angeles. The Project will construct two, four- to five-story buildings that would provide a total of 536,000 square feet (sf) of new office floor area, which is intended to be occupied by Apple, Inc. The Project will provide a total of 1,216 vehicular parking spaces within two connecting three-level subterranean garages; one under each proposed building. The Project would provide 175 bicycle parking spaces, including spaces for employees and visitors, short-term spaces, and long-term spaces in compliance with respective City codes. The Project would also include pedestrian-facing landscaping at the ground floor on National Boulevard and Venice Boulevard, as well as an internal courtyard for the use of employees and occasional private tenant events. The Project will remove the three existing buildings on the Project Site, totaling 105,047 sf. The Culver City parcel is currently developed with two warehouse buildings totaling 18,821 sf. A 9,739 sf building currently functions as storage space and a 9,082 sf buildings is currently vacant. The balance of the Culver City parcel consists of surface parking and vehicular access that supports the existing uses on the Project Site. The Los Angeles parcel is currently improved with a single warehouse building, 51,5000 sf of office space. The Los Angeles parcel is also comprised of 34,726 sf furniture retail space. Prior to October 2020, 24,550 sf of the total furniture retail space was occupied. There are 70 spaces of enclosed vehicular parking on the Los Angeles parcel.

The Project proposes three driveways:

- One commercial driveway and garage entrance from National Boulevard with right-only turns in/out from National Boulevard
- One commercial driveway and garage entrance from Venice Boulevard onto the eastern edge of the Project site, with right-only turns in/out from Venice Boulevard
- One driveway from Washington Boulevard, right-turn in only, leading to the Venice Boulevard garage entrance and driveway exit

The site plan is illustrated in **Figure 2**.

Three alternative access options are also being considered. These are:

1. Signalized Venice Driveway Alternative
2. National Driveway at Ivy Station Signal Alternative
3. Two Unsignalized Driveways Alternative

The Signalized Venice Driveway Alternative (Access Alternative 1) would include a new fully-signalized driveway on Venice Boulevard, a right-in/right-out driveway on National Boulevard, and emergency access only from Washington Boulevard.

The National Driveway at Ivy Station Signal Alternative (Access Alternative 2) would include a full access driveway as part of the National Boulevard & Ivy Station intersection (replacing the right-in/right-out driveway on National Boulevard from the Proposed Project), a right-in/right-out driveway on Venice Boulevard, and emergency access only from Washington Boulevard.

The Two Unsignalized Driveways Alternative (Access Alternative 3) would include a right-in/right-out driveway on National Boulevard in the same location as the Proposed Project, a right-in/right-out driveway on Venice Boulevard, and emergency access only from Washington Boulevard.

These three access options were also analyzed, and the results are included in the appendix as a supplemental analysis to the main study.

Study Scope

The Project is located in both the City of Culver City and the City of Los Angeles. The City of Culver City is acting as the lead agency for this study. The scope of work for this study was developed in conjunction with the Mobility & Traffic Engineering Division of the Culver City Department of Public Works and is in accordance with the City's CEQA transportation thresholds of significance and *Transportation Study Criteria and Guidelines* (TSCG) adopted in July 2020[1] as well as the Los Angeles Department of Transportation (LADOT) and its *Transportation Assessment Guidelines* (TAG) adopted in July 2019. The base assumptions and technical methodologies were discussed as part of a detailed Memorandum of Understanding (MOU) with Culver City, signed in March 2022. The MOU is included in **Appendix A** to this document.

With Culver City as the lead agency, this study follows the guidelines and methodology as outlined in the TSCG. The TSCG establishes an updated set of guidelines, methods, and impact criteria for CEQA considerations that focus on vehicle miles traveled (VMT), geometric hazards, and policy conflicts. The TSCG also establishes a framework for various non-CEQA analyses including an intersection analysis, transit operations analysis, driveway analysis, parking assessment, multimodal safety analysis, site plan review, residential street segment analysis, and construction period analysis. Each area of analysis is described in the TSCG with a discussion of methodology, evaluation criteria, and potential corrective action options.

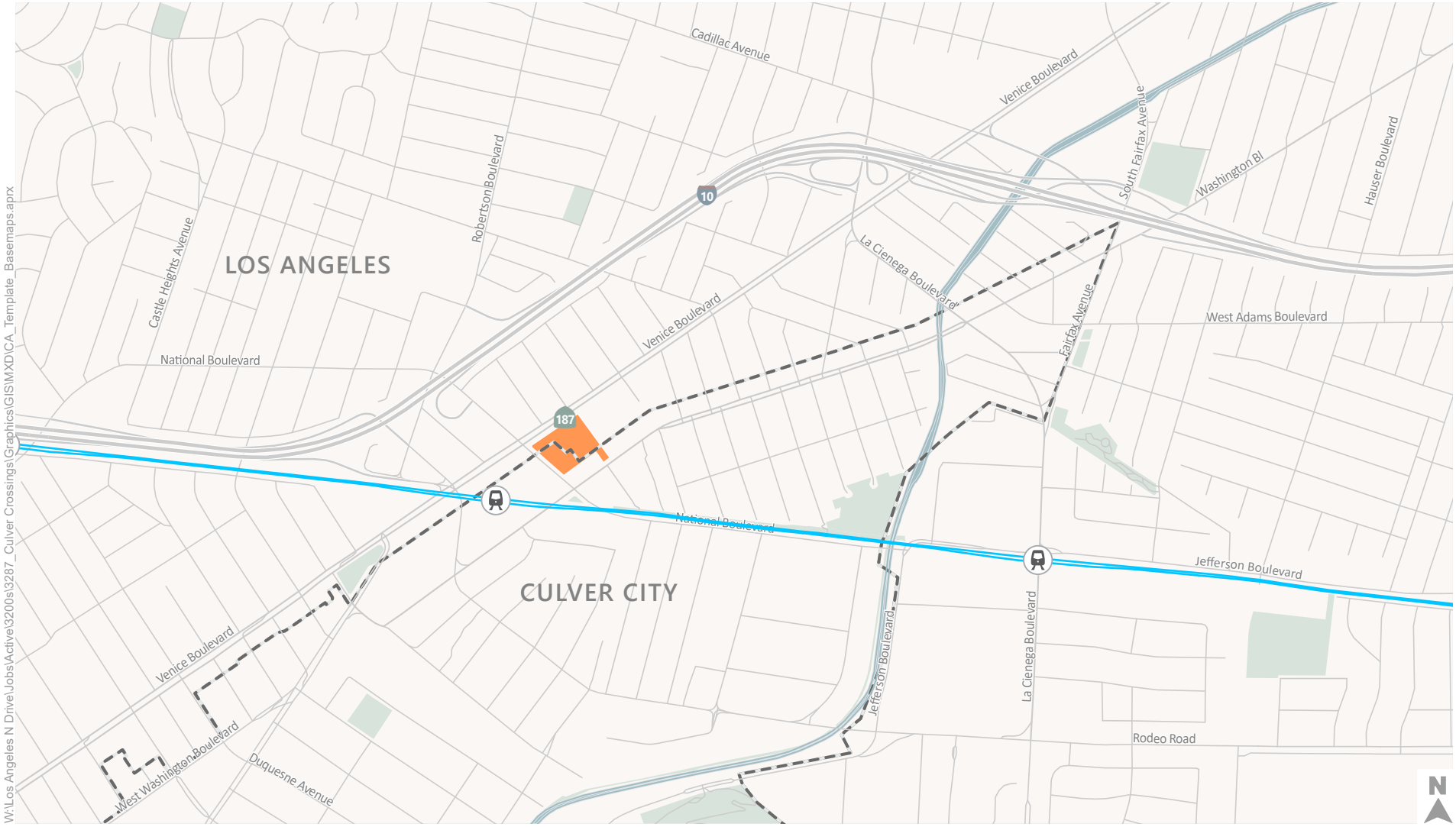
[1] On July 13, 2020, the Culver City City Council adopted a resolution formally implementing the City's updated transportation thresholds of significance for CEQA analyses and overall transportation study guidelines. The TSCG is the document providing the guidance for conducting both CEQA and non-CEQA transportation analyses.

Where applicable, the study also follows guidelines set by the LADOT TAG. The guidelines set by TAG are only required by the City of Los Angeles and not by Culver City.

Organization of Study

This study is divided into five chapters, including this introduction, Chapter 1. Chapter 2 describes the existing transportation conditions including an inventory of the streets, highways, and transit service in the study area. The required CEQA transportation analyses are presented in Chapter 3, including a review of consistency with the City's plans, programs, ordinances, and policies; a VMT analysis; and a geometric hazards evaluation. Chapter 4 includes the required non-CEQA transportation analyses, and contains a traffic operations analysis, residential street segment analysis, driveway analysis, transit operations analysis, multimodal safety analysis, and construction period analysis. Chapter 5 contains the study summary and conclusions. Appendices to this study include details of the technical analysis, as follows:

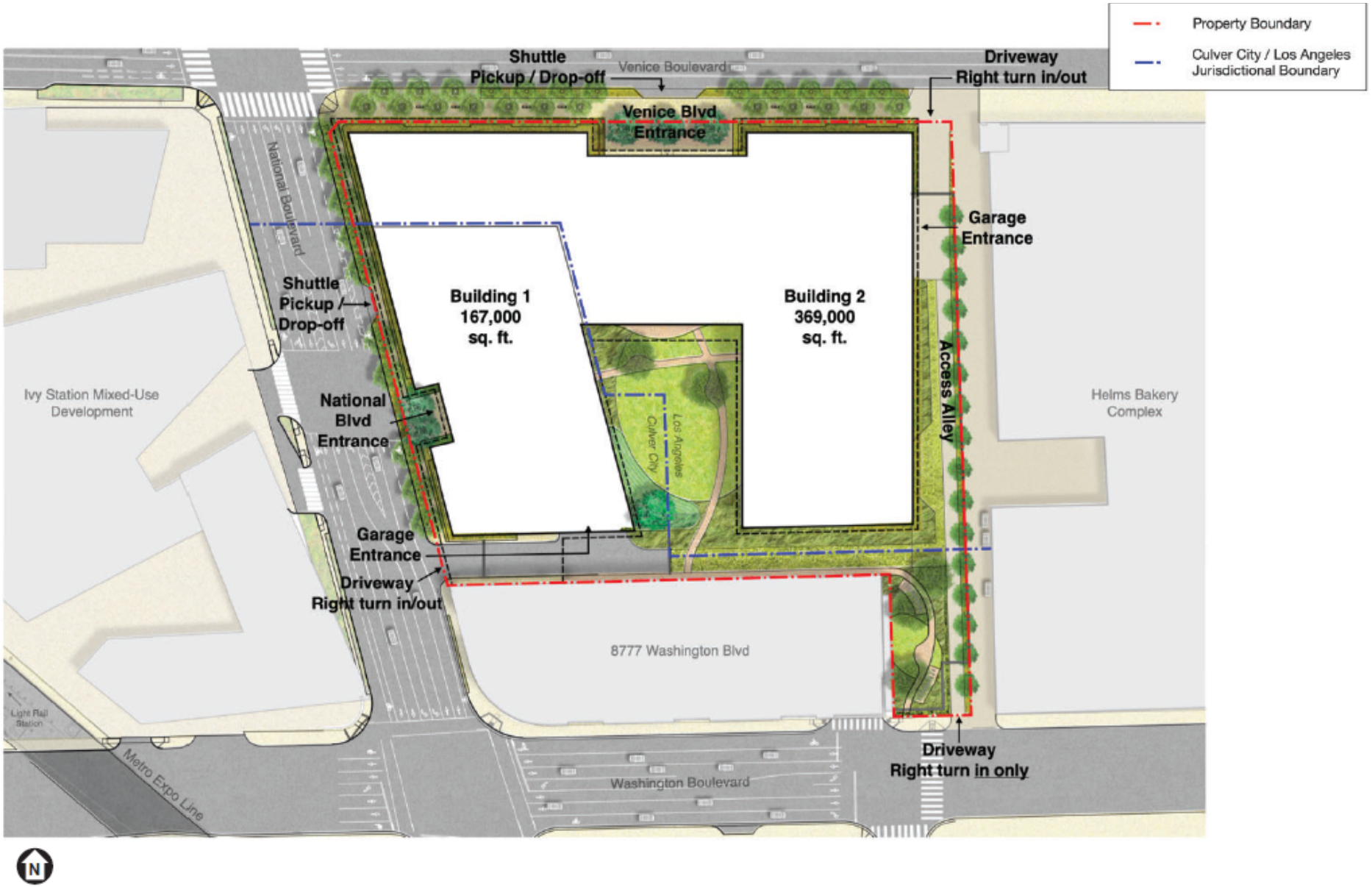
- Appendix A includes a copy of the Memorandum of Understanding approved by City of Culver City that describes study parameters and assumptions.
- Appendix B provides the detailed CEQA analyses per the LADOT TAG Guidelines.
- Appendix C includes the queuing analysis sheets for the Freeway Safety Analysis.
- Appendix D contains vehicle intersection turning movement and street segment counts for analysis locations.
- Appendix E includes the level of service (LOS), delay, and queuing results for the intersection and driveway operations analyses.
- Appendix F provides the supplemental report and analyses for the Alternative Access options.



Metro Rail Stations
Metro E Line
Cities
Parks
Project Site

Figure 1

Project Location



Source: Trammell Crow Company, 2021.

Figure 2
Site Plan

2. Environmental Setting

A comprehensive data collection effort was undertaken to develop a detailed description of existing transportation conditions in the study area. The assessment of conditions relevant to this study includes a description of the study area, an inventory of the local street system in the vicinity of the Project Site, a review of traffic volumes on these facilities, an assessment of the resultant operating conditions, existing bicycle & pedestrian facilities, and the current transit service in the study area. A detailed description of these elements is presented in this chapter.

Study Area

The proposed Project is located at 8825 National Boulevard and 8771 Washington Boulevard in the cities of Los Angeles and Culver City, California. The Project Site is bound by National Boulevard to the west, Venice Boulevard to the north, and Washington Boulevard to the south. The study area includes the Project Site, its associated street frontages, and the surrounding vicinity. The study area is an urban setting located near existing transit with a variety of land uses and densities. The Project is considered infill development, as it proposes to build on previously developed parcels. The streets in the study area fall under the jurisdiction of the City of Culver City and the City of Los Angeles.

Existing Street System

Washington Boulevard and National Boulevard provide access to the Project Site. Primary regional freeway access to the Project Site is provided by Interstate 10 (Santa Monica Freeway). The following is a brief description of the freeways and streets that serve the site:

- Santa Monica Freeway (I-10) – The Santa Monica Freeway runs east/west approximately 0.2 miles northeast of the Project Site. Access to the Santa Monica Freeway is available via interchanges at Robertson Boulevard, Venice Boulevard, and Washington Boulevard.
- Robertson Boulevard – Robertson Boulevard is primarily a north/south avenue that provides four travel lanes, two in each direction. North of Venice Boulevard, a short segment of Robertson Boulevard is a one-way street with two travel lanes providing connection to I-10. The two-way segment resumes east of the I-10 on-ramp continuing north towards Beverly Hills. The posted speed limit is 35 mph in the study area. Robertson Boulevard is classified as an Avenue II south of National Boulevard and a Modified Avenue II north of National Boulevard in Los Angeles.
- National Boulevard – National Boulevard is generally an east/west arterial that provides four travel lanes, two in each direction, with a center left-turn lane. National Boulevard runs north/south adjacent to the Project site. Parking is provided within the study area on one or both sides of the street. No parking is allowed on either side of the street south of Venice Boulevard. The speed limit is 35 mph in the study area. In Los Angeles, National Boulevard is classified as an Avenue II west of Robertson Boulevard, a Boulevard II between Robertson Boulevard and Regent Street as well as south of Venice Boulevard, and a Modified Avenue II between Regent Street and Venice Boulevard. The segment of National Boulevard located in Culver City is classified as a Secondary Artery.

- Venice Boulevard – Venice Boulevard is a major east/west arterial that provides six travel lanes, three in each direction. Parking is provided within the study area on one or both sides of the street. The posted speed limit is 40 mph in the study area. In Los Angeles, Venice Boulevard is classified as a Boulevard II west of National Boulevard and a Modified Boulevard II east of National Boulevard.
- Washington Boulevard – Washington Boulevard is a major east/west arterial that provides two travel lanes, one in each direction, with a center left turn lane and a bus-only lane in each direction. Parking is provided within the study area on one or both sides of the street. The posted speed limit is 35 mph in the study area. Washington Boulevard is classified as a Primary Artery in the Culver City.
- Helms Avenue – Helms Avenue is a north/south street that provides two travel lanes, one in each direction, that connects Venice Boulevard and Washington Boulevard. Parking is provided within the study area on one or both sides of the street, and there is no posted speed limit. Helms Avenue is classified as a Local Street – Standard in Los Angeles north of Venice Boulevard and a Local Street in Culver City south of Venice Boulevard.
- La Cienega Boulevard – La Cienega Boulevard is a major north/south arterial that provides six travel lanes, three in each direction, with a center left turn lane. Parking is provided within the study area on one or both sides of the street. The posted speed limit is 35 mph in the study area. La Cienega Boulevard is classified as an Avenue I in the City of Los Angeles.
- Wesley Street – Wesley Street is a north/south street that provides two travel lanes, one in each direction, that connects Washington Boulevard and National Boulevard. Parking is provided within the study area on one or both sides of the street. Wesley Street is classified as a Local Street in the Culver City.
- Landmark Street – Landmark Street is an east/west street that provides two lanes, one in each direction. Parking is provided within the study area on one or both sides of the street, and there is no posted speed limit. Landmark Street is classified as a Local Street in the Culver City.
- Fairfax Avenue – Fairfax Avenue is a major north/south arterial that provides four travel lanes, two in each direction with a center left turn lanes. Parking is provided within the study area on one or both sides of the street. The posted speed limit is 35 mph in the study area. Fairfax Avenue is classified as an Avenue II in the City of Los Angeles and Primary Artery in Culver City.

Existing Transit

The Project Site and study area are currently served by the Metro E Line and several bus routes serviced by Metro, Culver City Bus, and Big Blue Bus. Transit lines within one mile of the Project site are detailed below and illustrated in **Figure 3**. The bus service as described below pertains to conditions before the COVID-19 pandemic. Although bus service was temporarily reduced and would be expected to fluctuate as the situation evolves, it is expected that service will return to pre-pandemic conditions in the long-term future.

- Culver City Bus Line 1 – Line 1 is a local east/west route traveling from Washington Boulevard and Fairfax Avenue to Venice Beach on weekends and weekdays. The route travels along Washington Boulevard in the study area. The eastern end of Line 1 provides connections to Metro buses at the

Washington/Fairfax Transit Hub. The line is a key route connecting downtown Culver City and Venice Beach to the Metro E Line. The closest stop to the Project site is located at Washington Boulevard & National Boulevard.

- Culver City Bus Line 4 – Line 4 is a local east/west route traveling from Playa Vista to the West LA Transit Center on weekdays and Saturdays. The route travels along Jefferson Boulevard and Fairfax Avenue in the study area. This line provides service to West Los Angeles College, the Culver City Transit Center, the Metro E Line La Cienega/Jefferson Station, and West Los Angeles Transit Center. The closest stop to the Project site is located at La Cienega Boulevard & Jefferson Boulevard.
- Culver City Bus Line 5 – Line 5 is a weekday community circulator that connects Inglewood and Washington Boulevards with Blair Hills via Braddock Drive. Destinations include Culver City Junior and Senior High Schools, Downtown Culver City, the Hayden Industrial Tract and La Cienega Boulevard. Line 5 only operates when school is in session. The closest stop to the Project site is located at Washington Boulevard & Landmark Street.
- Culver City Bus Line 7 – Line 7 is a local northeast/southwest line that runs primarily along Culver Boulevard in the study area. Line 7 connects Downtown Culver City with the Fisherman's Village in Marina Del Rey. The line runs every 30 minutes on the weekdays and connects to the Metro E Line. The closest stop to the Project site is located on Washington Boulevard by the Metro E Line Culver City Station.
- Metro E Line – Metro E Line is a light rail line that travels from Downtown LA to Santa Monica. The E Line serves USC, Exposition Park, the Crenshaw District, Culver City, Palms, the Santa Monica Pier, and the Third Street Promenade. The E Line Culver City Station is less than 600 feet from the Project site.
- Metro Bus Line 33 – Line 33 is a local line from Downtown LA to Santa Monica via Venice Boulevard. Line 33 runs east/west along Venice Boulevard in the study area and north/south along Main Street to meet the Santa Monica Pier on weekdays and weekends. The closest stop to the Project site is located at Venice Boulevard & National Boulevard.
- Metro Bus Line 35/38 – Line 35/38 is a local line from Downtown LA to the Washington/Fairfax Transit Hub. Line 35/38 runs east/west along Washington Boulevard. The closest stop to the Project site is located at the Washington/Fairfax Transit Hub.
- Metro Bus Line 37 – Line 37 is a local line from Downtown LA to the Washington/Fairfax Transit Hub. Line 37 runs east/west along Adams Boulevard. The closest stop to the Project site is located at the Washington/Fairfax Transit Hub.
- Metro Bus Line 105 – Line 105 is a local line serving West Hollywood to Vernon via La Cienega Boulevard and Vernon Avenue. Line 105 runs north/south along La Cienega in the study area and then runs east/west along Obama Boulevard east of the La Cienega Boulevard/Obama Boulevard intersection on the weekdays and weekends. The closest stop to the Project site is located at La Cienega Boulevard & Jefferson Boulevard.
- Metro Bus Line 217 – Line 217 is a local line serving the Hollywood/Vine Station and La Cienega via Hollywood Boulevard and Fairfax Avenue. Line 217 runs east/west along Hollywood Boulevard from N. Vermont Avenue to Fairfax Avenue and then runs north/south along Fairfax Avenue to Jefferson

Boulevard where the La Cienega Station is located. The closest stop to the Project site is located at La Cienega Boulevard & Jefferson Boulevard.

- Metro Bus Line 617 – Line 617 is a local north/south line providing connections to the Culver City E Line station from Beverly Hills. Line 617 runs north/south along Robertson Boulevard from the Culver City Expo Line station in the south to the Beverly Center in the north. A portion of the route runs east/west on Burton Way to Beverly Boulevard where it runs north/south until Pico Boulevard. The closest stop to the Project site is located at Venice Boulevard & National Boulevard.
- Santa Monica Big Blue Bus Line 5 – Line 5 is primarily an east/west line serving Palms, Century City, and Santa Monica on weekdays. The line runs north/south along Motor Avenue in the Palms area and then east/west along Olympic Boulevard towards Santa Monica. Line 5 also provides connection to the Metro E Line Palms Station. The closest stop to the Project site is located at Metro E Line Palms Station at Manning Avenue and National Boulevard.
- Santa Monica Big Blue Bus Line 17 – Line 17 is primarily a north/south line serving Palms, the VA Medical Center, and UCLA on weekdays and weekends. The line runs east/west along Palms Boulevard in the Palms area and then north/south along Sawtelle Boulevard until reaching the VA Medical Center where the line then travels northeast towards UCLA. Line 17 also provides connection to the Metro E Line Culver City Station. The closest stop to the Project site is located at Robertson Boulevard & Venice Boulevard.
- LADOT Commuter Express Route 431 – Route 431 is a commuter express route connecting Westwood and Downtown LA. Route 431 provides service to Downtown LA from Westwood in the A.M. and service to Westwood from Downtown LA in the P.M. via I-10. Route 431 operates Monday through Friday with no service on the weekend. The closest stop to the Project site is located at the Metro E Line Palms Station.
- LADOT Commuter Express Route 437A – Route 437A is a commuter express route connecting West LA and Downtown LA. Route 437A provides service to Downtown LA from Culver City/Marina Del Rey/Venice in the A.M. and service to Culver City/Marina Del Rey/Venice in the P.M. via Culver and Washington Boulevards and I-10. Route 437A operates Monday through Friday with no service on the weekend. The closest stop to the Project site is located at Washington Boulevard and National Boulevard.

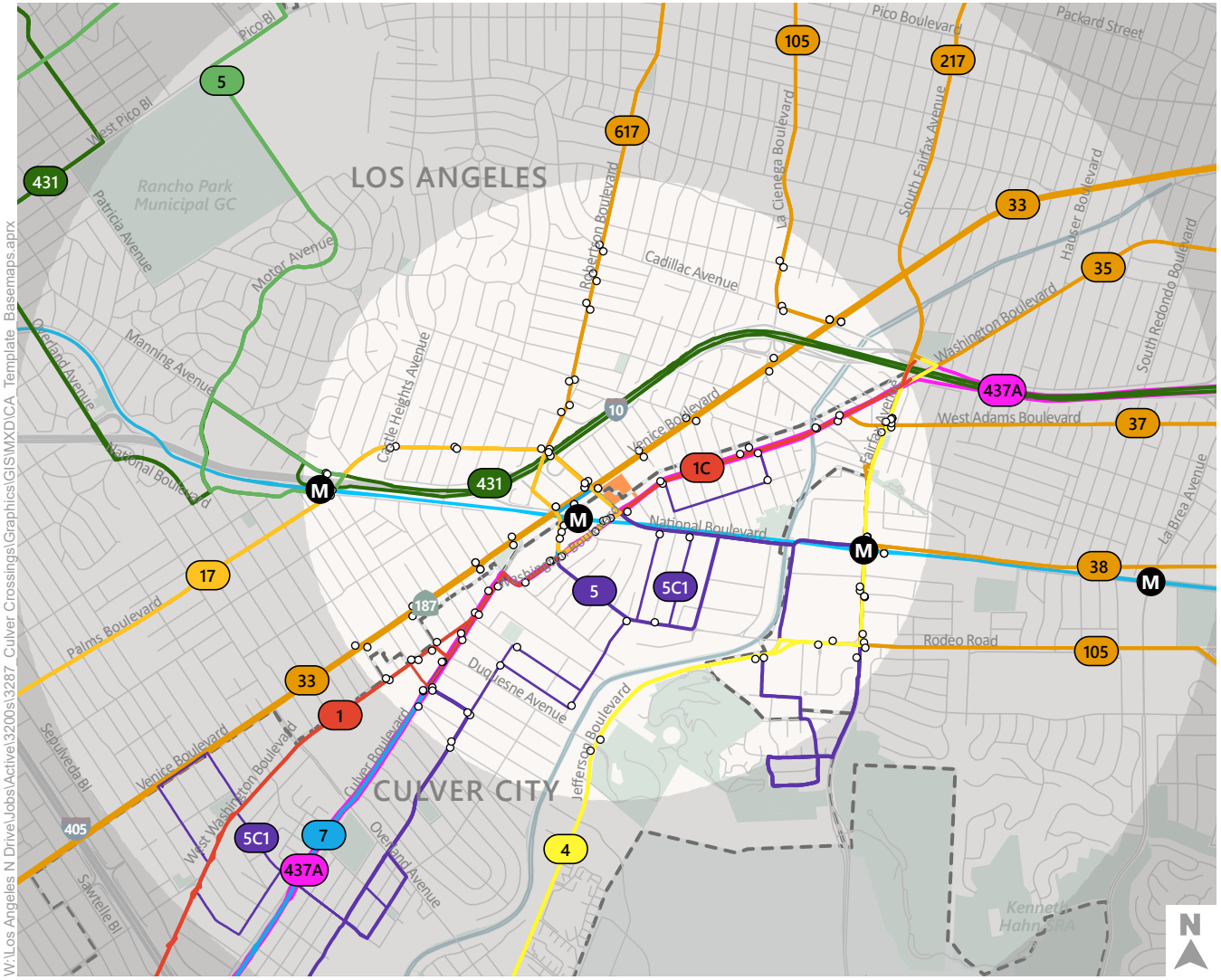
Existing Bicycle and Pedestrian Facilities

The Project Site is served by dedicated bicycle infrastructure within the study area. A Class I facility, the Ballona Creek Bike Path, runs along Ballona Creek approximately 3/4-mile south of the Project Site and provides bike and pedestrian connections to Marina Del Rey in the west and near Downtown Culver City in the east. Class II bike lanes run along Venice Boulevard, providing a connection to the Ballona Creek Bike Path via a Class I shared-use bike path on National Boulevard.

A map of the existing bike facilities, in addition to the proposed bike facilities per the Culver City Bicycle & Pedestrian Action Plan (Action Plan), adopted by City Council in June 2020, is illustrated in **Figure 4**. According to the Action Plan, Class IV separated bikeways are recommended along Washington Boulevard along the Project Site frontage.

Under the MOVE Culver City project, dedicated bus and bicycle lanes were installed in late 2021 and operational by January 2022, along Washington and Culver Boulevards, along with new bus-only traffic signals and bicycle signals.

All of the streets immediately bordering the Project Site and all other public streets in the vicinity include sidewalks on both sides of the street, facilitating pedestrian movement. Marked crosswalks are present at all signalized intersections in the study area. Pedestrian walk phases are either automatically provided at the intersections or are actuated by pedestrian push-buttons.



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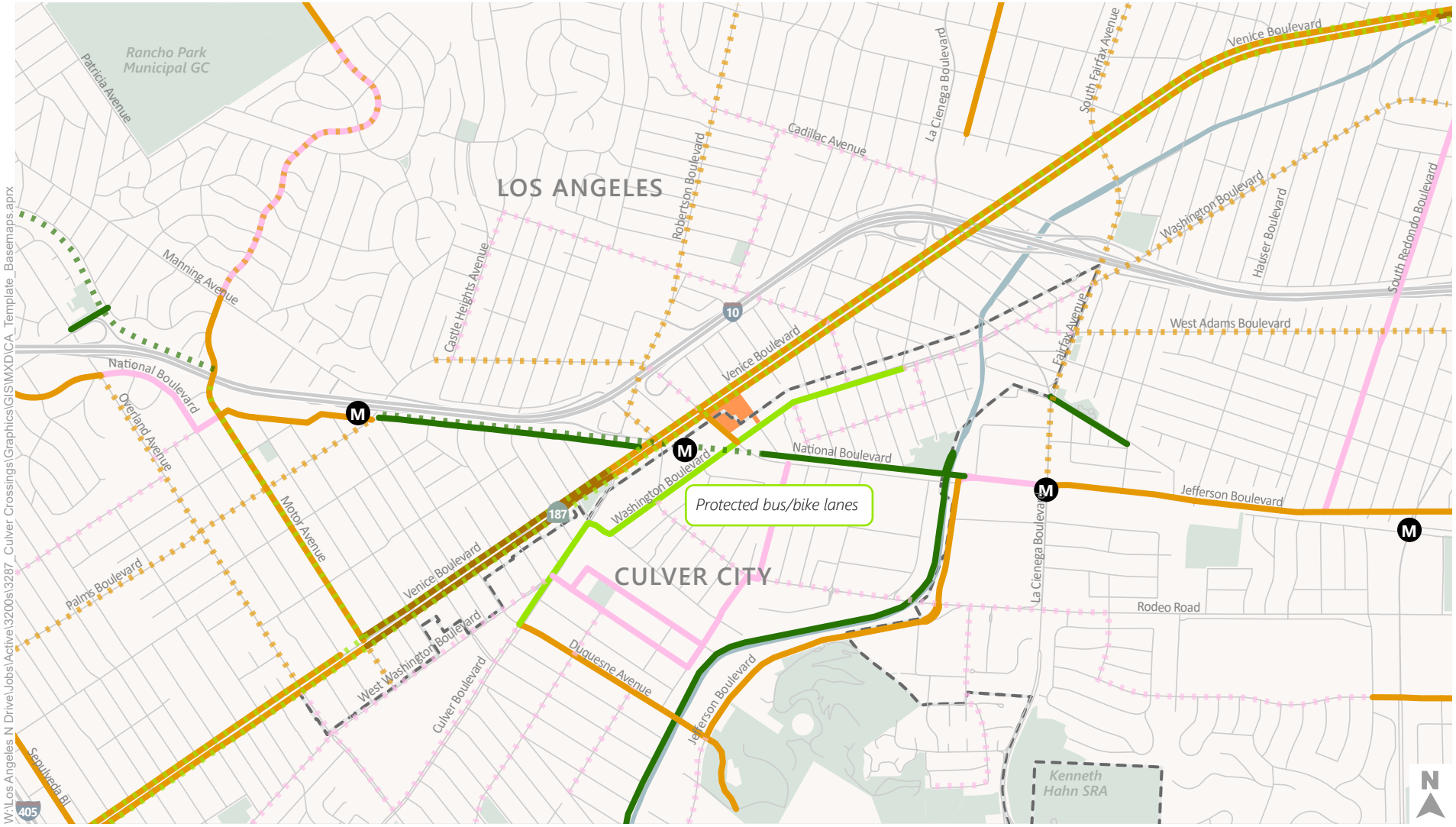
Line	Weekday Frequency (min.)			Pre-Pandemic Weekday Line Ridership
	Peak	*Midday*	*Evening*	
Big Blue Bus				
5	50-60	60	60	800
17	20	20	20-60	1,600
Culver City Bus				
1	15	15	30	3,083
1C	10	15	15	
4	40-60	40-60	-	855
5	*	*	*	66
5C1	*	*	*	
7	40	40-45	-	390
LADOT Commuter Express				
431	25-30	-	-	161
437A	15-30	-	-	83
Metro Bus				
33	7.5	7.5	15-30	10,085
35	15	15	40-60	7,702†
37	10	15	20-60	16,673
38	30-40	30	30-40	7,702†
105	10	10	15-60	10,057
217	10	10	15-30	6,366
617	45	45	60	618‡

**: Culver City Bus lines 5 and 5C1 operate only 1-3 trips per day, effectively serving as school bus routes.*
†: Metro bus lines 35 and 38 are joint service with shared ridership.
‡: Metro bus line 617 is a new service (est. July 2017).

Project Site
1.0-mile radius from Project Site
2.0-mile radius from Project Site
Bus stops within 1.0 mi
Bus lines within 1.0 mi (see table)
Metro Rail Stations
Metro E Line
Cities
Parks

Figure 3

Existing Transit Lines



Existing / Proposed Bikeways

- Class I Path
- Class II Buffered Bike Lane
- Class II Bike Lane
- Class III Bike Route ("Sharrow") or Bike Boulevard
- Class IV Protected Bike Lane ("Cycle Track")

- Project Site
- Metro Rail Stations
- Cities
- Parks

Proposed bikeways are from the 2012 Los Angeles County Bike Master Plan, part of the Mobility Element of the County's General Plan. Data for bikeways is obtained from Metro's 2016 ATSP data set.

Figure 4

Existing & Planned Bike Facilities

3. CEQA Transportation Analyses

This section presents the CEQA analysis for the main driveway access option for the Project. **Appendix F** summarizes the CEQA analysis for the three alternative access options. The analysis in Appendix F summarizes any parts of the analysis that would be meaningfully different from the main driveway access for each of the three alternative access options.

SB 743 Background

As part of updated CEQA guidelines, proposed land use projects require an analysis to determine whether they cause a significant impact on VMT. The following section is a background on VMT and an assessment of VMT generated by the Project.

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law and started a process that fundamentally changed transportation impact analysis conducted as part of California Environmental Quality Act (CEQA) compliance. The Governor's Office of Planning and Research (OPR) was charged with developing new guidelines for evaluating transportation impacts under CEQA using methods that no longer focus on measuring automobile delay and level of service (LOS).

OPR issued proposed updates to the CEQA guidelines in support of these goals in November 2017[2] and a supporting technical advisory in December 2018.[3] The updates established VMT as the primary metric for evaluating a project's environmental impacts on the transportation system. The changes to CEQA Guidelines Section 15064.3 to implement SB 743 were certified by the California Natural Resources Agency in December of 2018[4]. Local jurisdictions were required to revise their procedures accordingly by July 2020. The City, as the lead agency, adopted new significance thresholds for transportation impacts based on VMT, a VMT Calculator tool to measure VMT for development projects, and new transportation study guidelines. These thresholds and guidelines were developed in 2019 and 2020 and were adopted at a City Council Meeting on July 13, 2020.

Vehicle Miles Traveled Analysis

The City developed a VMT Tool to assess the VMT impacts of proposed development projects within the City. The VMT Tool also assesses the effectiveness of selected Transportation Demand Management (TDM) measures proposed for a project based on available research. With Culver City as the lead agency, the VMT analysis follows the City of Culver City's procedures identified in the TSCG and VMT Tool.

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[2] State of California, Governor's Office of Planning and Research, *Proposed Updates to the CEQA Guidelines, Final*, November 2017.

[3] State of California, Governor's Office of Planning and Research, *Technical Advisory on Evaluating Transportation Impacts in CEQA*, December 2018.

[4] State of California, Natural Resources Agency, Final Adopted Text, December 2018. https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf

VMT Screening Criteria

The TSCG specifies the City's VMT screening criteria for development projects. Per the criteria, if a development project meets any of the below VMT screening thresholds, it would be exempted from having to conduct VMT impact analysis to comply with CEQA, and a less than significant impact is presumed.

1. Small projects that result in less than 250 daily or 25 peak hour trips.
2. Projects within a ½ mile from these key TPAs: Metro E Line Culver City Station, Metro E Line La Cienega Station, Westfield-Culver City Transit Center, or Sepulveda/Venice Boulevard intersection.
3. Projects located within any TPA where at least 15% of the on-site residential units are affordable.
4. Affordable housing projects where 100% of the dwelling units are affordable.
5. Local serving retail projects having less than 50,000 square feet in size at a single store.

The Project is located less than 600 feet from the Metro E Line Culver City Station, well within the ½ mile from a key TPA as identified in Threshold 2. Therefore, the Project is screened from having to conduct VMT impact analysis and is presumed to have a less than significant impact on VMT.

Transportation Demand Management Measures

While the Project is presumed to have a less than significant impact on VMT, a TDM program is proposed. A TDM program consists of strategies that are aimed at discouraging single-occupancy vehicle trips and encouraging alternative modes of transportation, such as carpooling, taking transit, walking, and biking.

Project Site Design Elements

The Project as proposed includes compliance with regulatory requirements and site design elements that would be expected to enhance the usage of walking, biking, and transit modes as alternatives to the automobile. The Project's site design includes implementation of pedestrian network improvements throughout and around the Project Site, including sidewalk improvements on all Project frontages, internally linking all uses within the Project Site and connecting the Project Site to the surrounding public pedestrian network.

Voluntary TDM Measures

The following voluntary TDM measures will be implemented to reduce vehicle trips generated by the Project. The Project will offer a wide variety of options to support employees choose to use a commute alternative to reach their destination. These programs are designed to make non-auto commutes attractive and viable options by providing employees with mobility once they arrive at work, access to needed services during the day, or financial incentives to participate.

- TDM Support Services – The Project will offer tailored trip planning assistance with in-house TDM coordinators. Assistance will be available for all employees online, by email, and by phone. The Project will also host a virtual kiosk every week to chat with a team member and have any questions answered.

- Marketing and Communications – The Project would provide a comprehensive website detailing alternative transportation options such as carpool, rail, shuttle, coach, bike, and options available for transportation once on campus. To provide transportation information to new employees, the Commute Program would make a presentation at New Employee Orientation. The Commute Program will also actively monitor email lists and group list to discuss and collaborate with employees on improving commute programs. Information dissemination tools would include: monthly news updates, web updates, email templates, lobby information centers, communication regarding service expansions, and attending internal employee events.

- Public Transit – The Project will provide its own shuttle system to provide connections to public transit. The Project will also offer a monthly transit subsidy which provides a financial incentive for riding transit instead of driving to the Project site.

- Rideshare – The Project would provide an online tool that matches riders with drivers originating from similar locales. This would reduce single occupancy vehicle trips to and from the Project.

- Bicycling – The Project would provide a monthly subsidy to employees who commute by bicycle to work, which can be used to pay for bicycle improvements, maintenance, and storage, or towards the purchase of a bicycle. The Project will also promote cycling by participating in a regional bike to workday, providing discounts on select cycling products, providing a website that has information on safe cycling and cycling apps.

- Walking – The Project will continue to upgrade access points to the site to improve pedestrian connectivity and expand adherence to the Americans with Disabilities Act (ADA). Employees will be encouraged to walk to events, meetings, and meals whenever possible. The areas surrounding the walkways and sidewalks will be well-landscaped and maintained, with pedestrian oriented lighting to contribute to the safety of walking at night.

- Pre-tax Commuter Benefit – A pre-tax commuter benefit would be provided to employees for commute-related expenses such as public transit (after the transit subsidy), vanpooling, parking. The commuter benefit would supplement the transit and bicycle subsidies.

- Commuter Club – A Commuter Club is an opt-in program that offers employees the opportunity to receive Commute Program email updates about schedule updates, new service, events, and programs.

- Commute Expert Program – This program would provide people using a commute alternative an opportunity to meet other employees who are using the same mode who can "mentor" them by providing answers to questions about using that mode, stop locations, routes, or local transit options.

- Guaranteed Ride Home Program – The Project Site would sponsor a guaranteed ride home for Project Site employees who came to work without their own car in the event of an unexpected situation or emergency when walking, biking, carpooling, or taking transit home would not be feasible.

- Intercampus Shuttles – The Project would provide on-request and fixed route intercampus shuttles between other buildings occupied by the Apple during work hours.
- Campus Bike Share Program – A Campus Bike Share program will be implemented to provide a transportation option between other buildings occupied by Apple. Campus bikes will be equipped with GPS tracking and an electronic rear-wheel lock to help secure the fleet. Campus bikes will be managed and maintained by a local bike maintenance vendor.
- On-site Services – The Project will provide its employees with on-site amenities such as full-service cafeterias, coffee bars, shower facilities, and produce deliveries. The offered services would contribute to limiting the number of vehicle trips employees would need to take off-site during the day.

Plans, Programs, Ordinances, and Policies Conflict Review

Under CEQA, a project is considered consistent with an applicable plan if it is consistent with the overall intent of the plan and would not preclude the attainment of its primary goals. Any inconsistency with an applicable policy, plan, or regulation is only a significant impact under CEQA if the policy, plan, or regulation was adopted for the purpose of avoiding or mitigating an environmental effect and if the inconsistency itself would result in a direct physical impact on the environment.

The City's TSCG requires a review for conflicts with transportation-related plans, programs, ordinances, or policies. Based on applying the screening criteria, the threshold test is to assess whether a project would conflict with an adopted program, policy, plan, or ordinance that is adopted to protect the environment. A project would not be shown to result in an impact merely based on whether a project would not implement a particular program, policy, plan, or ordinance. Rather, it is the intention of this threshold test to ensure that proposed development does not conflict with nor preclude the City from implementing adopted programs, plans, and policies. This evaluation was conducted by reviewing the following City of Culver City documents: General Plan Circulation and Land Use Elements, Short Range Mobility Plan, Bicycle and Pedestrian Action Plan, and Complete Streets Policy.

A review of transportation-related plans, programs, ordinances, or policies by the City of Los Angeles as according to the LADOT TAG is also summarized below and can be found in **Appendix B**.

City of Culver City

Culver City General Plan Circulation (2004) and Land Use (2000) Elements

These documents guide the physical development of neighborhoods, providing neighborhood level detail for land uses, the transportation network, policies, and implementation strategies. The following is a review of the Project's consistency with transportation related measures, objectives, and policies in these plans:

Circulation Element (CE) Policy 1.A

Facilitate movement of vehicles at intersections and along roadway links by increasing capacity, improving operation, and reducing volumes as appropriate and feasible.

The proposed Project's close proximity to several public transportation options would support this policy by allowing employees to commute via alternative modes to reduce volumes. The proposed TDM program (as described above) would also help to reduce volumes on nearby roadways due to employee commute. The Project would also provide a new curb cut pick-up/drop-off zone on Venice Boulevard and National Boulevard. This pick-up/drop-off zone would facilitate smoother operations on Venice Boulevard and National Boulevard by keeping pick-up/drop-off operations out of through vehicle and bike lanes.

CE Policy 1.F

Reduce driveways and curb cuts on arterials in favor of side street and alley access, where appropriate, considering potential impacts on the neighborhoods served by the side streets.

The proposed Project would support this policy by maintaining the existing number of driveways and curb cuts on the three frontages of the Project Site. Because the Project is fronted on three sides by arterials, making use of side streets for driveways is not possible, but the Project is proposing alley access on its east side. The Project would also restore the sidewalk on the east side of National Boulevard where there is presently a driveway entry to a surface parking lot across from the Ivy Station driveway.

CE Policy 2.C

Maintain levels of transit service that are adequate to meet and encourage ridership demand.

The proposed Project Site is located in an area well served by public transportation, including the Los Angeles County Metropolitan Transportation Authority (Metro), the Los Angeles Department of Transportation (LADOT), and Culver City Department of Transportation, which provide an extensive system of bus lines in Culver City and City of Los Angeles, and links to the larger metropolitan area. The proposed Project Site is located one block east from the Metro E Line Culver City Station.

CE Policy 2.H

Encourage public transit links to sites of high trip-generating uses to maximize transit use by patrons and employees.

The proposed Project would support this policy by providing new office development adjacent to frequently running transit lines and the Metro E Line Culver City Station, which would encourage ridership. The proposed TDM plan would also encourage ridership through various programs.

CE Policy 3.D

Seek public and private contributions to provide support facilities for bicycle users (such as racks, secure storage, drinking fountains, etc.) where bikeways connect to turnouts, parks, and other open space areas, as appropriate.

The proposed Project would support this policy by providing 175 secure bicycle parking spaces, including spaces for employees and visitors, short-term spaces, and long-term spaces in compliance with respective City codes.

CE Policy 3.G

Encourage large business, commercial centers, and industrial parks to include bicycle lockers, or other secure bicycle storage and related facilities, to support bicycle commuting by employees.

The proposed Project would support this policy by providing 175 secure bicycle parking spaces, including spaces for employees and visitors, short-term spaces, and long-term spaces in compliance with respective City codes.

CE Policy 4.C

Provide safe and attractive pedestrian walkways/sidewalks which link streets and parking areas to the entrances of major developments.

The proposed Project would support this policy by enhancing pedestrian circulation and promoting an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.

CE Policy 4.D

Enhance the aesthetic qualities of pedestrian access routes by increasing amenities, such as trees, awnings, lighting, street furniture, and drinking fountains, etc.

The proposed Project would support this policy by enhancing pedestrian circulation and promoting an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.

CE Policy 6.B

Reduce pressure on on-street parking through provision of private and public off-street parking facilities.

The proposed Project would support this policy by providing an adequate amount of parking according to the Culver City Municipal Code and Los Angeles City Municipal Code, which require 1,216 off-street parking spaces based on the size of the development and land use type. The Project would provide 1,216 off-street parking spaces within two separate three-level subterranean garages, one under each proposed building.

Land Use Element

No transportation related measures, objectives, or policies were found to require Project review in the Land Use Element.

Short Range Mobility Plan (2022-2026)

The Culver City Transportation Department Short Range Mobility Plan provides a service analysis of the current fixed route service, the impact of local and regional transit projects, and an evaluation of main corridors and the on-demand services offered, such as Dial-A-Ride and microtransit. It focuses on public

transportation services, enhancing fixed route and paratransit services, expanding micro mobility with scooters and bikes, and offering microtransit services. The implementation of the Short Range Mobility Plan is largely within the purview of the City rather than private developers or property owners. The Project would not preclude the implementation of the Short Range Mobility Plan. The Project would be in support of this plan because of the Project's proximity and accessibility to several public transportation options. The proposed Project Site is located in an area well served by public transportation, as described above.

Bicycle and Pedestrian Action Plan (2020)

The City's Action Plan establishes the visions and values that focus on establishing walking and cycling as viable modes of travel for all trip types. The Plan aims to provide a safe, convenient, and accessible active transportation network, accessible by users of all ages and abilities. The Action Plan was adopted by City Council in June 2020, and supersedes the 2010 City's Bicycle and Pedestrian Master Plan. The following is a review of the transportation related measures, objectives, and policies in the Action Plan:

Action HS-3.2

Use current design guidelines to encourage development patterns that promote active transportation and allow for short trips between destinations.

The Project supports this action by proposing offices near several transit options that also offer bicycle parking, encouraging pedestrian trips and shorter trips between destinations. The Project would also enhance pedestrian circulation and promote an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.

Action HS-4.1

Build an active transportation network that encourages Culver City residents to use means of transportation other than driving by providing safer, more comfortable biking and walking facilities.

The Project supports this action by implementing 175 bicycle parking spaces, including spaces for employees and visitors, short-term spaces, and long-term spaces. A Class IV separated bikeway is recommended along Washington Boulevard fronting the Project site. The Project Site frontage designs and access points will not preclude the implementation of this facility and other future high-quality bicycle facilities. The Project is primarily using or modifying existing driveways, and a Class IV bikeway design would by necessity need to accommodate site access. During the design of a new bicycle facility, planners and engineers account for existing and planned site access needs and accommodate with best practices to alert all road users to the potential mixing zones and conflict areas with geometric design, signage and striping. The Project would also enhance pedestrian circulation and promote an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.

Complete Streets Policy

The Complete Streets Policy lays out a plan for designing safer, more vibrant streets, that are accessible to people, no matter how they travel. The supplementary Complete Streets Design Guidelines have not yet been developed at the time of this study but are anticipated in the future. The following policies in the Complete Streets Policy are relevant to the Project:

Policy 5a.i

The City will plan, design, operate, and maintain a transportation system that provides a connected network of streets and facilities that accommodate all modes of travel. The City will actively seek opportunities to repurpose or enhance rights-of-way to improve connectivity for pedestrians, bicyclists, and transit users.

The Project supports this policy by introducing development that is conducive to walking, biking, and taking transit. The Project would introduce new bicycle parking and additionally would enhance pedestrian rights-of-way by introducing increased sidewalk and parkway widths, and enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. Existing transit options with a close proximity of the Project Site would allow for pedestrian and bicycle access to public transit.

Policy 5a.ii

The City will pursue enhancements to the bicycle and pedestrian connectivity to public transit services, as well as to schools, parks, service retail, public facilities, regional connections, and business districts.

The Project would support this policy by enhancing pedestrian circulation and promoting an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.

Policy 5b.ii

The City will emphasize pedestrian access along and across City streets by, for example, providing convenient and protected crossing locations, shortening crossing distances through the use of curb extensions and tight curb radii, and enhancing signage and pavement markings.

The Project supports this policy by increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.

Policy 5d.ii

The City will coordinate street improvements with business owners along retail and commercial corridors to develop or enhance vibrant business districts.

The Project supports this policy by introducing development that is conducive to walking, biking, and taking transit. The Project would enhance pedestrian rights-of-way by introducing landscaping along the sidewalks and widening the sidewalk along National Boulevard.

Conclusion

The Project features and design support multimodal transportation options and would be consistent with policies, plans, ordinances, and programs that support alternative modes of transportation. The Project design includes features to minimize impacts to the public right-of-way and enhance the user experience by integrating multimodal transportation options.

The Project would not conflict with adopted policies, plans, ordinances, and programs, or preclude City action to fulfill or implement projects associated with these networks and will contribute to overall walkability through enhancements to the Project Site. **Therefore, the Project would have a less than significant impact on the City's transportation-related plans, programs, ordinances, and policies.**

City of Los Angeles

A review was conducted to determine whether the Project conflicts with a City of Los Angeles transportation-related plan, program, ordinance, or policy that was adopted to protect the environment.

> **Threshold T-1:** Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities?

This evaluation was conducted in alignment with CEQA guidelines and LADOT TAG an includes a review of the following City documents:

City of Los Angeles General Plan (1970) is a comprehensive policy document that informs future land use decisions. It is comprised of several Elements that provide a guide for how land is used and how the City allocates its resources.

The *City of Los Angeles Mobility Plan 2035 (2016)* as adopted under the City's General Plan and is considered an update to the Transportation Element. It incorporates "complete streets" principles and lays the policy foundation for the operation and design of streets and public right-of-way.

The Plan for a Healthy Los Angeles (2015) is an element of the City's General Plan and lays the foundation to create healthier communities for all Angelenos. The Plan "provides high-level policy vision, along with measurable objectives and implementation programs to elevate health and environmental justice as a priority for the City's future growth and development."

Citywide Design Guidelines (2019) establish ten guidelines to carry out the common design objectives laid out in the City's General Plan Framework Element and 35 Community Plans. The Guidelines are organized around one of three design approaches: Pedestrian-First Design, 360 Degree Design, and Climate-Adopted Design.

Municipal Code of the City of Los Angeles (2002) codifies the regulatory and penal ordinances of the City. The current Sixth Edition assists City officials, departments, and other governmental agencies in their functions, and "will serve the people as the official source of information regarding the regulations enacted by the City of Los Angeles for the preservation of the public peace, health and safety."

West Adams-Baldwin Hills-Leimert Community Plan (2016)[5] is one of 35 Community Plans in the City that establishes the policies and programs that inform the framework for local land use, circulation, and service systems within the selected community plan area.

West Adams-Baldwin Hills-Leimert Community Plan Implementation Overlay District (CPIO) (2019) addresses the various land use issues in the community and provides regulations tailored to the specific needs for several CPIO subareas identified for the plan area.

Vision Zero Los Angeles (2017)[6] is a plan that strives to eliminate traffic-related deaths in Los Angeles by 2025 through multiple strategies such as modifying streets to better serve vulnerable road users.

Impact Analysis

As outlined in **Table 1** and shown in the detailed evaluation in **Appendix B**, the Project is consistent with the various regional and local plans, programs, ordinances, and policies related to transportation.

Conclusion

The Project features, location, and design generally support multimodal transportation options and would be consistent with City plans, policies, ordinances, and programs put in place to protect the environment. The Project is anticipated to have a less-than-significant impact on the City's ability to execute its plans, programs, policies, and ordinances related to the protecting the environment.

[5] This Community Plan was adopted in 1998 and amended in 2016 as part of the Mobility Plan 2035 Update. The 2016 plan is currently in effect and forms the basis for this review of conflicts relating to the transportation system.

[6] *Vision Zero Los Angeles 2015-2025 Action Plan*, Effective January 2017.

TABLE 1
CITY OF LOS ANGELES CONSISTENCY WITH PLANS, PROGRAMS, ORDINANCES, AND POLICIES
CROSSINGS CAMPUS PROJECT

Plan, Program, Ordinance, or Policy	Project Consistency
City of Los Angeles Mobility Plan 2035	The Project's proposed land use and design features, including site access; pedestrian, bicycle and transit accessibility; and loading areas, were reviewed and were found to be consistent with the policies of the Mobility Plan 2035. Venice Boulevard fronting the Project site is part of the Pedestrian-Enhanced District, the Bicycle-Enhanced Network, and the Transit-Enhanced Network. The Project would not conflict with the implementation of future projects in the public right-of-way on these networks.
Citywide Design Guidelines	The Project would not conflict with the circulation components of the *Citywide Design Guidelines*. The guidelines call for incorporating vehicular access such that it does not discourage and/or inhibit the pedestrian experience and promoting a safe, comfortable, and accessible pedestrian experience. The Project would reduce the number of curb cuts compared to existing conditions on National Boulevard (from two to one), maintain the same limited number of curb cuts on Washington Boulevard (one), and proposes a driveway adjacent to an existing driveway along Venice Boulevard that would be widened to accommodate the proposed driveway. The Project would therefore not create additional conflict points between vehicles, pedestrians, and bicyclists. The Project is consistent with these guidelines.
Municipal Code of the City of Los Angeles	The Project and its features are consistent with the City's Municipal Code. The Project would comply with applicable with code requirements such as bicycle parking and adequate sight distance and pedestrian movement controls.
Plan for a Healthy Los Angeles	The Project does not conflict with the *Plan for a Healthy Los Angeles*. It would reduce vehicle trips and vehicle miles traveled by providing employment options for a growing neighborhood residential population and creating a work destination that is easily accessible via public transportation. This Project would also reduce vehicle trips and vehicle miles traveled by implementing a voluntary TDM Program to reduce single-occupancy vehicle travel to and from the Project Site. It would also reduce vehicle trips and vehicle miles traveled due to the infill nature of the Project in a walkable and developing city center environment. The Project would introduce new bicycle parking and additionally would enhance pedestrian rights-of-way by introducing increased sidewalk and parkway widths, and enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. Existing transit options in close proximity to the Project Site would allow for pedestrian and bicycle access to public transit.
Vision Zero Los Angeles	Vision Zero Los Angeles (2017) is a plan that strives to eliminate traffic-related deaths in Los Angeles by 2025 through multiple strategies such as modifying streets to better serve vulnerable road users. The north boundary of the Project is Venice Boulevard, which is identified as part of the HIN. The Project proposes a driveway adjacent to an existing driveway along Venice Boulevard. The existing driveway would be widened to accommodate the proposed driveway and would therefore not create any additional conflict points between vehicles, pedestrians, and bicyclists traveling on Venice Boulevard and would not preclude the City from implementing changes associated with Vision Zero. Street trees and other potential impediments to driver and pedestrian visibility would be located in a manner that would maintain safe conditions near the Project driveway. The pedestrian points of entry would be provided along Venice Boulevard and National Boulevard, and bicycle parking would be provided on site. The Project proposes a curbside passenger and shuttle loading zone along the northern frontage, immediately in front of the Venice Boulevard entrance. The loading zone would provide a designated space for shuttles and passenger vehicles to wait in a "turnout" or indentation of the curb that provides sufficient space for vehicles to fully exit the vehicle and bicycle lanes. Although this would still require vehicles to cross the bicycle lane, providing a dedicated and demarcated space congregates these curb demands into one area rather than occurring haphazardly at any location around the site, and following best practices, the bike lane would include "conflict zone" painting (a dashed or broken striping pattern) alerting riders and vehicles of the potential cross-over traffic. Such a curbside loading zone should have no effect on the pedestrian safety as it would not be located at or near a designated pedestrian crossing. The Project is not located in a Safe Routes to School program area. The Project would not conflict with the implementation of future Vision Zero projects in the public right-of-way.
West Adams-Baldwin Hills-Leimert Community Plan	The Project is consistent with the transportation components of the West Adams-Baldwin Hills-Leimert Community Plan. It would support the Community Plan's goals under Land Use & Urban Design and Mobility Chapters.
West Adams-Baldwin Hills-Leimert Community Plan Implementation Overlay District (CPIO)	The Project is consistent with the transportation components of the West Adams-Baldwin Hills-Leimert Community Plan. It would support the CPIO's goals.

Geometric Design Hazards

This section discusses impacts regarding the potential increase of hazards due to a geometric design feature that generally relates to the design of access points to and from the Project Site and may include safety, operational, or capacity impacts.

Pedestrian access to the Project Site would be provided via widened 15-foot-wide sidewalks located along Project Site frontages on National Boulevard and Venice Boulevard. Residents and visitors arriving at the Project Site by bicycle would have the same access opportunities as pedestrians and would be able to utilize on-site bicycle parking facilities. The Project's access locations would be designed to the City's adopted standards and would provide adequate sight distance, sidewalks, crosswalks, and pedestrian movement controls that meet the City's requirements to protect pedestrian safety. All three Project driveways will intersect streets (Washington Boulevard, National Boulevard, or Venice Boulevard) at right angles. The driveways will also be at-grade and flat prior to intersecting streets. Street tree placement and the location of other potential impediments to driver and pedestrian visibility would be considered to maintain safe conditions near the Project driveways. Pedestrian entrances separated from vehicular driveways with curb and sidewalk would provide access from the adjacent streets, parking facilities, and transit stops. The Project proposes a curbside passenger and shuttle loading zone along the northern frontage, immediately in front of the Venice Boulevard entrance. A secondary passenger and shuttle loading zone directly north of the National Boulevard entrance is also planned. The loading zones would l The loading zone would provide a designated space for shuttles and passenger vehicles to wait in a "turnout" or indentation of the curb that provides sufficient space for vehicles to fully exit the vehicle and bicycle lanes. Although this would still require vehicles to cross the bicycle lane, providing a dedicated and demarcated space congregates these curb demands into one area rather than occurring haphazardly at any location around the site, and following best practices, the bike lane would include "conflict zone" painting (a dashed or broken striping pattern) alerting riders and vehicles of the potential cross-over traffic. Such a curbside loading zone should have no effect on the pedestrian safety as it would not be located at or near a designated pedestrian crossing. The streets immediately bordering the Project Site and nearly all the other streets in the vicinity include sidewalks, facilitating pedestrian movement. Marked crosswalks are present at all study intersections in the study area.

The Project was analyzed with the following access assumptions:

- Vehicle access to the Project Site would be provided as follows; all three proposed driveways described below would be part of existing driveways/curb cuts:
    - One commercial driveway and garage entrance from National Boulevard, with right-only turns in/out from National Boulevard
    - One commercial driveway and garage entrance from Venice Boulevard onto the eastern edge of the Project site, with right-only turns in/out from Venice Boulevard
    - One driveway from Washington Boulevard, right-turn in only, leading to the Venice Boulevard garage entrance and driveway exit
- Pedestrian access via two entrances, described below:

- Pedestrian entrance on National Boulevard
- Pedestrian entrance on Venice Boulevard

The Project driveways would be designed to comply with City of Culver City standards as outlined in the Culver City Municipal Code (Section 17.320.040) and City of Los Angeles Bureau of Engineering Standards (S-440-4). The driveways would be configured to avoid or minimize potential conflicts with transit services and pedestrian traffic by providing curb and sidewalk to separate pedestrian movements from vehicular movements. The two pedestrian access points are located along the major frontages of the Project site and located to minimize pedestrian-vehicle conflicts; pedestrians accessing the Project site from the Metro E Line Culver City Station do not have to cross Project vehicle driveways to enter the Project site. The Project would not substantially increase hazards or conflicts and would contribute to overall walkability through enhancements to the Project Site. **Therefore, the Project would cause a less than significant impact regarding geometric design hazards.**

A more detailed analysis of geometric design hazards according to the LADOT TAG can be found in **Appendix B**.

Freeway Safety Analysis

In May 2020, LADOT provided interim guidance on freeway safety analysis for land use proposals that are required to prepare a Transportation Assessment[7]. The freeway safety analysis evaluates a proposed Project's effects to cause or lengthen a forecasted off-ramp queue onto the freeway mainline and create speed differentials between vehicles exiting the freeway off-ramps and vehicles operating on the freeway mainline that could constitute a potential safety impact under CEQA. While Culver City is the lead agency on this study, the TSCG does not provide guidance on freeway safety analysis.

The LADOT interim guidance on freeway safety analysis requires analysis of freeway off-ramps where a proposed project adds 25 or more trips in either the morning or afternoon peak hour to be studied for potential queuing impacts. If the proposed project is not projected to add 25 or more peak hour trips at any freeway off-ramps, then a freeway ramp analysis is not required. The Project is projected to add 25 or more trips to the following freeway off-ramps during both the AM and PM peak hours:

- I-10 WB Off-Ramp & Robertson Boulevard
- I-10 WB Off-Ramp & Venice Boulevard
- I-10 WB Off-Ramp & Washington Boulevard

Methodology

If a freeway ramp analysis is required, the interim guidance provides the following steps to determine if the proposed project may constitute a potential safety impact under CEQA.

[7] Los Angeles Department of Transportation, *LADOT Transportation Assessments – Interim Guidance for Freeway Safety Analysis* (May 2020).

- For the identified freeway off-ramps, prepare a queuing study for the "Future with Project" conditions for the proposed project build-out year. Evaluate the adequacy of the existing and future storage lengths with the 95th percentile queue and 100% of the storage length on each lane of the ramp from the stop line to the gore point. When an auxiliary lane is present, add 50% of the length of the auxiliary lane to the ramp storage area.
- If the proposed project traffic is expected to cause or add to a queue extending onto the freeway mainline by less than two car lengths, the proposed project would cause a less-than-significant safety impact. If the queue is already extending or projected to extend onto the freeway mainline, and the addition of traffic generated by the proposed project would increase the overflow onto the mainline lanes by less than two car lengths, the project would cause a less-than-significant safety impact
- If a proposed project adds two or more car lengths to the ramp backup that extends to the freeway mainline, then the location must be tested for safety issues which include a test for speed differential between the off-ramp queue and the mainline of the freeway during the particular peak hour. If the speed differential between the mainline lane speeds and the ramp traffic is below 30 mph, the project would be considered to cause a less-than-significant safety impact. If the speed differential is 30 mph or more, then there is a potential safety issue. The Caltrans Performance Measurement System (PeMS) data should be used to identify freeway operating speed(s) during the peak hour being analyzed. If reliable PeMS data are not available at the subject location, other sources of speed data including location-based services data from available sources could be used.
- If the speed differential is 30 mph or more, which may result in a potential safety issue, the guidance suggests a proposed project should consider the following preferred corrective measures to offset a potential safety issue:
    - Transportation demand management program(s) to reduce the project's trip generation,
    - Investments to active transportation infrastructure, or transit system amenities (or expansion) to reduce the project's trip generation, and/or
    - Potential operational change(s) to the ramp terminal operations including, but not limited to, lane reassignment, traffic signalization, signal phasing or timing modifications, etc. This option requires coordination with Caltrans and LADOT to assess feasibility and for approval of the proposed measure(s).

  A physical change to the ramp itself (addition of auxiliary lane, ramp widening, etc.) may be considered. However, this change would have to demonstrate substantial safety benefits, not be a VMT-inducing improvement, and not result in other environmental issues. If the cost of the physical change to the ramp is substantial, then a fair-share contribution to the improvement may be required if necessary requirements are met, including, but not limited to, Caltrans defining the improvement cost, and opening a Project File/Project Account to accept a financial contribution for the improvement.

Analysis

A queuing study was conducted for the "Existing with Project," "Future with Project" and "Horizon Year with Project" conditions for the Existing conditions, Project buildout year (2026) and Project Horizon year (2045), respectively, using trip generation and forecasted traffic volumes detailed in Chapter 4. Per the guidance,

the adequacy of the existing and future storage lengths was evaluated with the 95th percentile queue where 100% of the storage length on each lane of the ramp from the stop line to the gore point was used and 50% of the length of the auxiliary lane was added to the ramp storage area. The analysis was conducted using the Synchro software and HCM 2016. **Table 2** shows the queue lengths and analysis results for both freeway off-ramps in the Existing and Existing plus Project scenarios. **Table 3** shows the queue lengths and analysis results for both freeway off-ramps in the Future Base and Future plus Project scenarios. **Table 4** shows the queue lengths and analysis results for both freeway off-ramps in the Horizon Year and Horizon Year plus Project scenarios. Analysis sheets are provided in **Appendix C**.

Project traffic volumes and future background traffic volumes at the three analyzed off-ramps were estimated using the methodologies described in Chapter 4 of this report.

I-10 Westbound Off-Ramp & Robertson Boulevard

The queue length on the I-10 Westbound Off-Ramp to Robertson Boulevard is not projected to exceed ramp capacity in the Existing Base and Existing plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length on the I-10 Westbound Off-Ramp to Robertson Boulevard is not projected to exceed ramp capacity in the Future Base and Future plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length on the I-10 Westbound Off-Ramp to Robertson Boulevard is not projected to exceed ramp capacity in the Horizon Year and Horizon Year plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

I-10 Westbound Off-Ramp & Venice Boulevard

The queue length on the I-10 Westbound Off-Ramp to Venice Boulevard is not projected to exceed ramp capacity in the Existing Base and Existing plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length on the I-10 Westbound Off-Ramp to Venice Boulevard is not projected to exceed ramp capacity in the Future Base and Future plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length is not projected to exceed ramp capacity in the Horizon Year and Horizon Year plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

I-10 Westbound Off-Ramp & Washington Boulevard

The queue length on the I-10 Westbound Off-Ramp to Washington Boulevard is not projected to exceed ramp capacity in the Existing Base and Existing plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length on the I-10 Westbound Off-Ramp to Washington Boulevard is not projected to exceed ramp capacity in the Future Base and Future plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length is not projected to exceed ramp capacity in the Horizon Year and Horizon Year plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

Conclusion

The addition of Project traffic under all three analysis scenarios is not projected to cause or add to a queue extending onto the freeway mainline by less than two car lengths. Therefore, the Project is expected to cause a less than significant safety impact.

TABLE 2
FREEWAY OFF-RAMP QUEUING ANALYSIS
EXISTING (2022) + PROJECT CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Movement[1]	Storage Length (feet)[2]	Maximum Queue (feet)[3]				Queue Increase		Project Contributes to Unacceptable Queuing	
					Existing (2022)		Existing + Project					
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
A	Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp	Signal	WBT	2,325	100	275	100	275	0	0	No	No
			WBR	2,325	100	700	100	700	0	0	No	No
B	I-10 WB Off-Ramp/Cadillac Ave & Venice Blvd	Signal	NBT	3,600	325	500	350	500	25	0	No	No
C	I-10 WB Off-Ramp/Electric Dr & Washington Blvd	Signal	NBL	2,725	100	225	100	250	0	25	No	No
			NBT	2,725	100	500	100	500	0	0	No	No

Notes:

1 Movement acronyms represent the cardinal direction (first two letters) and the turn movement (last letter). For example, NBL=Northbound-left movement, NBR = Northbound-right movement, and NBT = Northbound-through movement. Shared indicates that multiple movements are allowed from a single lane.

2 The storage length shown (measured in feet based on online aerial photographs) is the maximum storage length available for a single lane for each movement. Ramp storage lengths were determined assuming that 100% of the storage length on each lane of the ramp from the stop line to the gore point could be used. When an auxiliary lane was present, 50% of the length of the auxiliary lane was added to the ramp storage length.

3 Storage lengths and queues are shown in feet and rounded up to the nearest 25.

TABLE 3
FREEWAY OFF-RAMP QUEUING ANALYSIS
FUTURE (2026) + PROJECT CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Movement[1]	Storage Length (feet)[2]	Maximum Queue (feet)[3]				Queue Increase		Project Contributes to Unacceptable Queuing	
					Future (2026)		Future + Project					
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
A	Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp	Signal	WBT	2,325	150	350	150	350	0	0	No	No
			WBR	2,325	100	750	100	750	0	0	No	No
B	I-10 WB Off-Ramp/Cadillac Ave & Venice Blvd	Signal	NBT	3,600	400	550	400	550	0	0	No	No
C	I-10 WB Off-Ramp/Electric Dr & Washington Blvd	Signal	NBL	2,725	125	275	150	300	25	25	No	No
			NBT	2,725	125	525	125	525	0	0	No	No

Notes:

1 Movement acronyms represent the cardinal direction (first two letters) and the turn movement (last letter). For example, NBL=Northbound-left movement, NBR = Northbound-right movement, and NBT = Northbound-through movement. Shared indicates that multiple movements are allowed from a single lane.

2 The storage length shown (measured in feet based on online aerial photographs) is the maximum storage length available for a single lane for each movement. Ramp storage lengths were determined assuming that 100% of the storage length on each lane of the ramp from the stop line to the gore point could be used. When an auxiliary lane was present, 50% of the length of the auxiliary lane was added to the ramp storage length.

3 Storage lengths and queues are shown in feet and rounded up to the nearest 25.

TABLE 4
FREEWAY OFF-RAMP QUEUING ANALYSIS
HORIZON YEAR (2045) + PROJECT CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Movement[1]	Storage Length (feet)[2]	Maximum Queue (feet)[3]				Queue Increase		Project Contributes to Unacceptable Queuing	
					Horizon Year (2045)		Horizon + Project					
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
A	Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp	Signal	WBT	2,325	150	400	150	400	0	0	No	No
			WBR	2,325	100	825	100	825	0	0	No	No
B	I-10 WB Off-Ramp/Cadillac Ave & Venice Blvd	Signal	NBT	3,600	400	650	425	650	25	0	No	No
C	I-10 WB Off-Ramp/Electric Dr & Washington Blvd	Signal	NBL	2,725	125	300	150	300	25	0	No	No
			NBT	2,725	125	600	150	600	25	0	No	No

Notes:

1 Movement acronyms represent the cardinal direction (first two letters) and the turn movement (last letter). For example, NBL=Northbound-left movement, NBR = Northbound-right movement, and NBT = Northbound-through movement. Shared indicates that multiple movements are allowed from a single lane.

2 The storage length shown (measured in feet based on online aerial photographs) is the maximum storage length available for a single lane for each movement. Ramp storage lengths were determined assuming that 100% of the storage length on each lane of the ramp from the stop line to the gore point could be used. When an auxiliary lane was present, 50% of the length of the auxiliary lane was added to the ramp storage length.

3 Storage lengths and queues are shown in feet and rounded up to the nearest 25.

4. Non-CEQA Transportation Analyses

The purposes of the non-CEQA transportation analyses required in Culver City's TSCG are to promote orderly development, evaluate and address transportation-system issues, and promote public safety and the general welfare by ensuring that development projects are properly related to their sites, surrounding properties, and traffic circulation. This section includes a site plan review, intersection operations analysis, driveway operations analysis, residential street segment analysis, parking assessment, multimodal safety analysis, transit operations analysis, and a construction period analysis.

Site Plan Review

As mentioned in the CEQA geometric hazards analysis, the proposed Project would not result in a significant impact related to geometric design hazards. As shown in **Figure 2**, the Project would propose three driveways, a reduction from the four that currently serve the existing uses on the Project Site. Vehicular access to the new below-grade parking, as well as loading docks and trash areas, would be provided via two main driveways: one on National Boulevard serving the building on the Culver City Parcel, and one on Venice Boulevard serving the building on the Los Angeles Parcel. The National Boulevard driveway and the Venice Boulevard driveway are proposed to be right turn in/right turn out. A third driveway from Washington Boulevard would provide ingress only to the Culver City and Los Angeles parcels. Further driveway LOS and queuing analysis is provided in the operations analysis.

Commercial use deliveries would utilize loading docks located at the driveways on National Boulevard and Venice Boulevard.

Intersection Operations Analysis

The purpose of the intersection operations analysis is to assess the ability of the circulation system to accommodate the vehicular traffic generated by the Project and other related projects. This analysis includes intersection LOS, delay, and queuing analysis.

Analysis Scenarios

The Project is expected to be completed by the year 2026. The analysis of the opening year traffic forecast is based on projected conditions in 2026 both with and without the addition of the Project traffic. According to TSCG requirements, the following traffic scenarios have been developed and analyzed as part of this study:

- Existing (2022) Conditions – The analysis of existing traffic conditions sets a baseline for the remainder of the study. The existing conditions analysis includes a description of the street system serving the site, current traffic volumes, and an assessment of the operating conditions at these locations. Traffic counts were collected in May 2022 as stay-at-home orders during the COVID-19 pandemic were lifted and most businesses returned to working in person. Notably, counts were taken after Amazon Studios, a large employer in the study area, returned to in-person work.

- Existing (2022) plus Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under existing conditions with the addition of Project-generated traffic.
- Future Year (2026) Conditions – Future year traffic conditions without the proposed Project were developed for the year 2026. The objective of this analysis is to project future traffic and operating conditions that could be expected to result from regional changes and related projects in the vicinity of the Project Site by 2026.
- Future Year (2026) plus Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under Future Year conditions with the addition of project-generated traffic.
- Horizon Year (2045) Conditions – According to the Culver City Travel Demand Forecasting Model (TDFM), the future horizon year is 2045. Horizon year traffic conditions without the proposed Project would be developed for the year 2045. The objective of this analysis is to predict future traffic and operating conditions that might be expected to result from regional changes and related projects in the vicinity of the Project Site by 2045.
- Horizon Year (2045) plus Project Conditions – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under Future Buildout conditions with the addition of project-generated traffic.

Study Locations

The scope and selection of study intersections and residential street segments was developed in conjunction with City staff. This study analyzed 13 intersections based on guidance from the TSCG and staff.

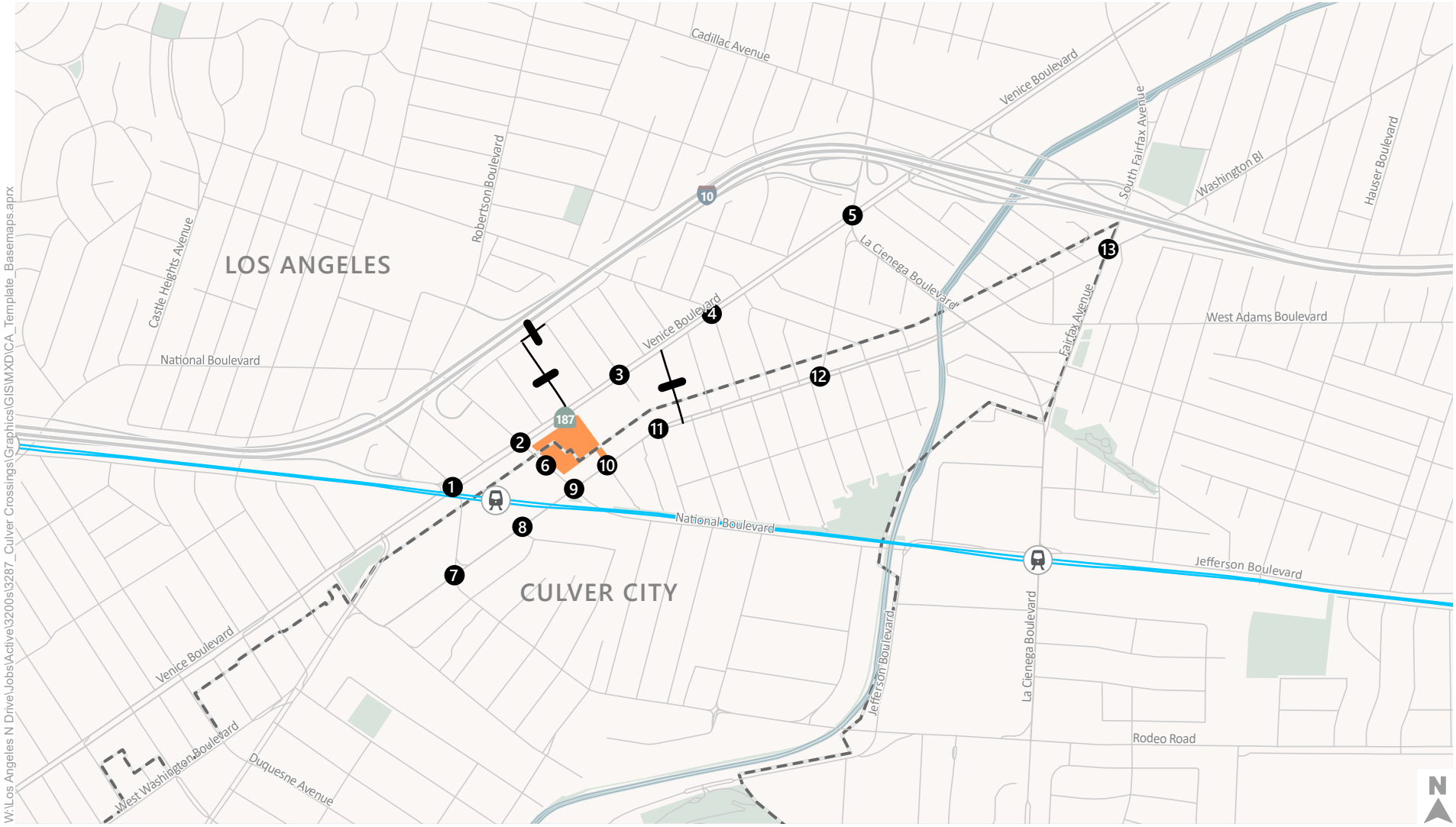
This study analyzes the following Culver City and Los Angeles intersections:

1. Robertson Boulevard & Venice Boulevard
2. National Boulevard & Venice Boulevard
3. Helms Avenue & Venice Boulevard
4. Cattaraugus Avenue & Venice Boulevard
5. La Cienega Boulevard & Venice Boulevard
6. Ivy Station & National Boulevard
7. Robertson Boulevard & Washington Boulevard
8. Landmark Street & Washington Boulevard
9. National Boulevard & Washington Boulevard
10. Wesley Street & Washington Boulevard
11. Helms Avenue & Washington Boulevard
12. La Cienega Avenue & Washington Boulevard
13. Fairfax Avenue & Washington Boulevard

Additionally, the one-block segments of Hutchison Avenue between Venice Boulevard and Washington Boulevard, Ivy Street between Venice Boulevard and Regent Street, and Regent Street between Ivy Street and Vera Avenue were studied for potential neighborhood intrusion. The study intersections and street segment are illustrated in **Figure 5**.

Existing Traffic Volumes and Level of Service

This section presents the existing peak hour turning movement traffic volumes for each of the intersections analyzed in the study, describes the methodology used to assess the traffic conditions at each intersection, and analyzes the resulting operating conditions at each, indicating volume/capacity ratios and levels of service. Traffic counts are provided in **Appendix D**.



Study Intersections
Study Roadway Segments
Metro Rail Stations
Metro E Line
Cities
Parks
Project Site

Figure 5

Study Intersections and Street Segments

Existing Traffic Volumes

Weekday morning and evening peak hour traffic counts were collected at the 13 study intersections in May 2022 as stay-at-home orders during the COVID-19 pandemic were lifted and most businesses returned to working in person. Notably, counts were taken after Amazon Studios, a large employer in the study area, returned to in-person work. The 24-hour counts at the analyzed street segments were taken in March/May 2022. These counts occurred while all local schools and districts, including West LA College, UCLA, Culver City Unified School District, and Los Angeles Unified School District were in session. The existing weekday traffic volumes are illustrated in **Figure 6**.

Level of Service Methodology

LOS is a qualitative measure used to describe the condition of traffic flow on the street system, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. LOS definitions for signalized and unsignalized intersections are provided in **Table 5** and **Table 6**. All but one study intersection is signalized.

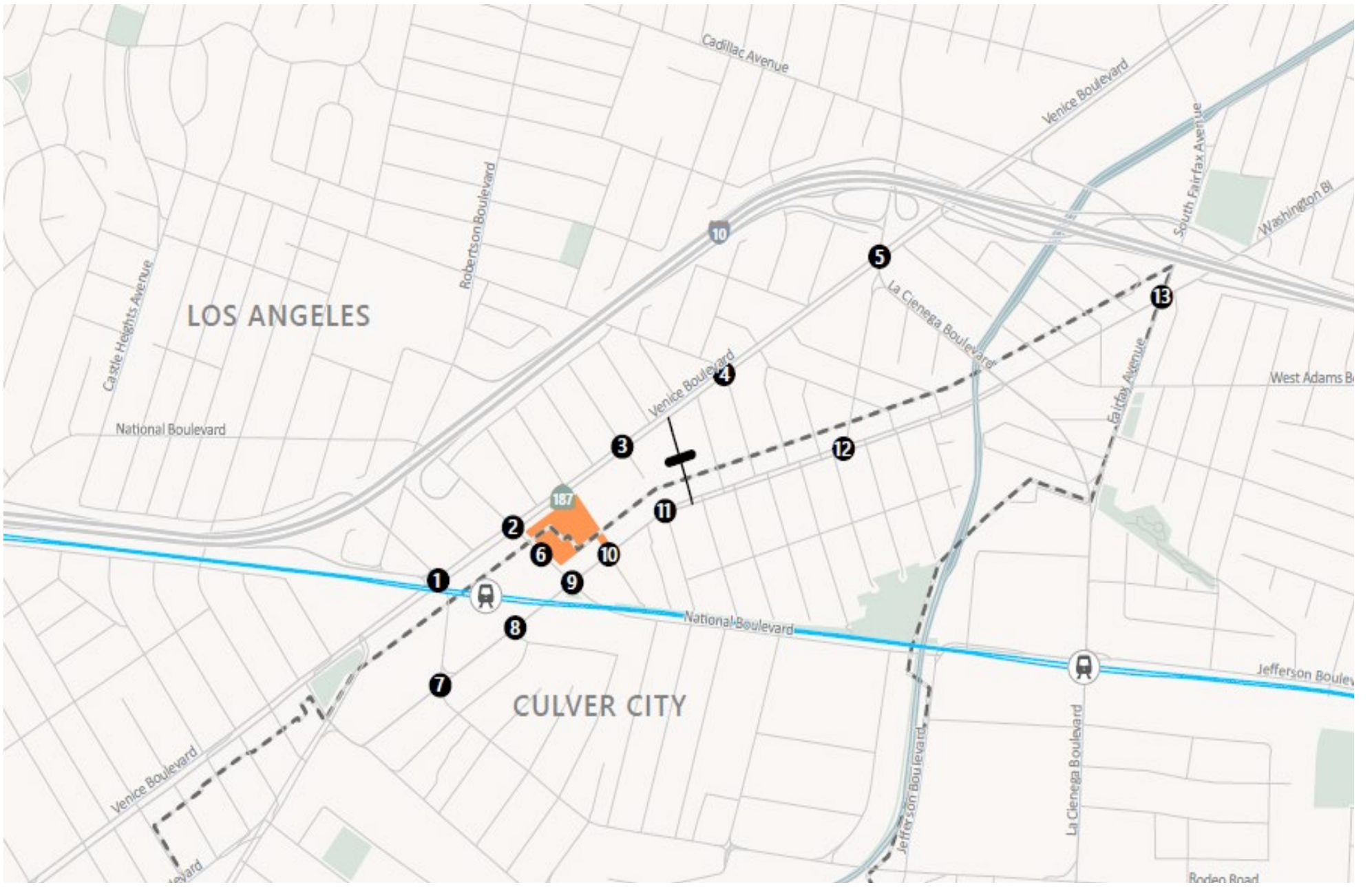
Since the intersections selected for this study fall within either the jurisdiction of the City of Los Angeles or the City of Culver City, relevant standards were applied depending on the location of each intersection. Per both cities' requirements, the Highway Capacity Manual, 6th Edition (HCM) methodology was used to determine the average intersection delay (seconds) and corresponding LOS for the study intersections. This analysis was performed using the Synchro software program. Synchro calculates vehicle delay and LOS based on procedures outlined in the HCM. The most current signal timing information from each City was used in the analysis of signalized study intersections.

Existing Levels of Service

The traffic volumes presented in **Figure 6** were analyzed using the methodologies described above to determine the current operating conditions at the 13 analyzed intersections. **Table 7** summarizes the Existing (2022) LOS analysis results. As shown in the table, the following four intersections are currently operating at LOS E or F:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
5. La Cienega Boulevard & Venice Boulevard (PM Peak Hour)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (PM Peak Hour)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

Detailed LOS calculation worksheets are presented in **Appendix E**.



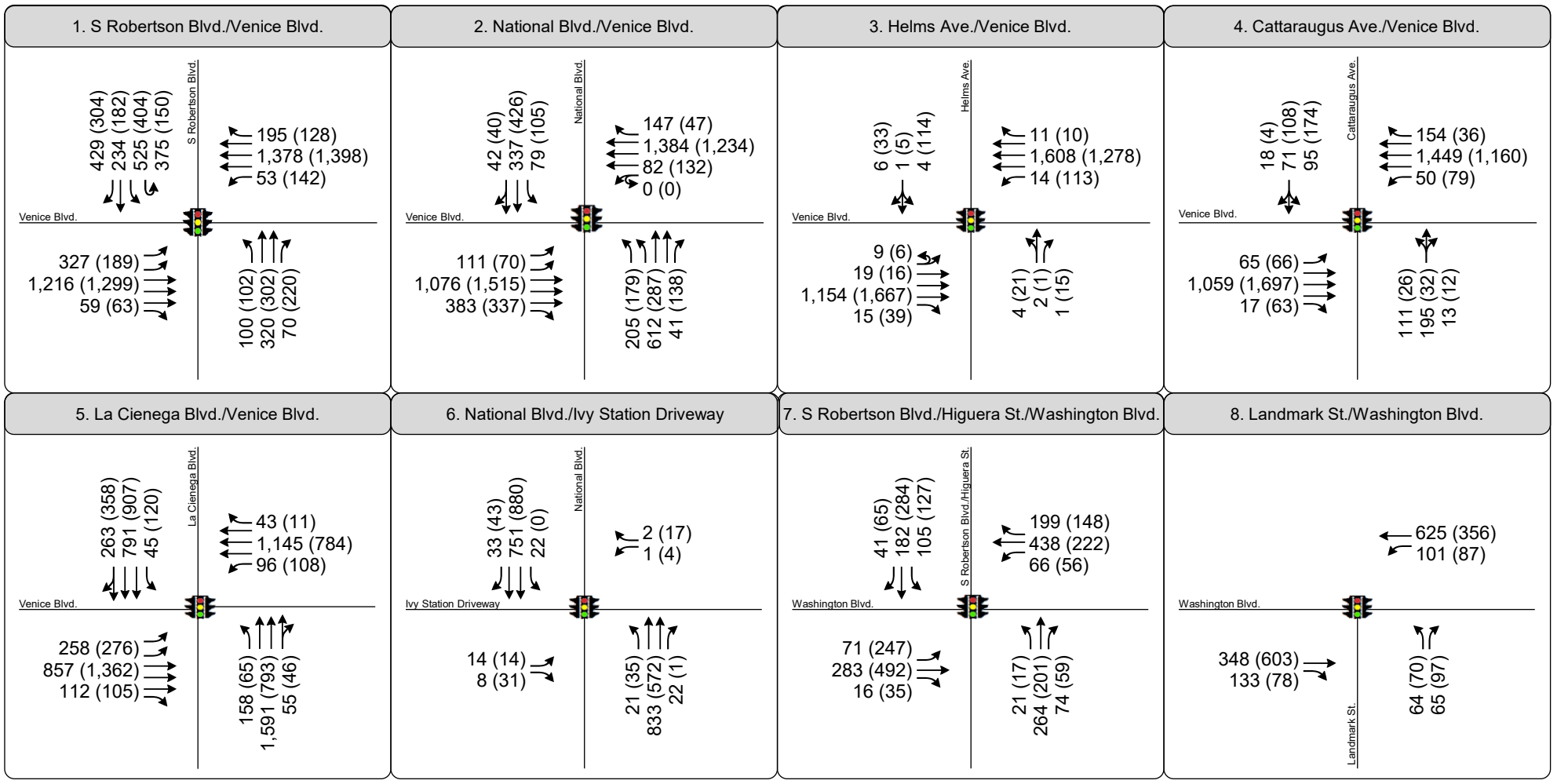
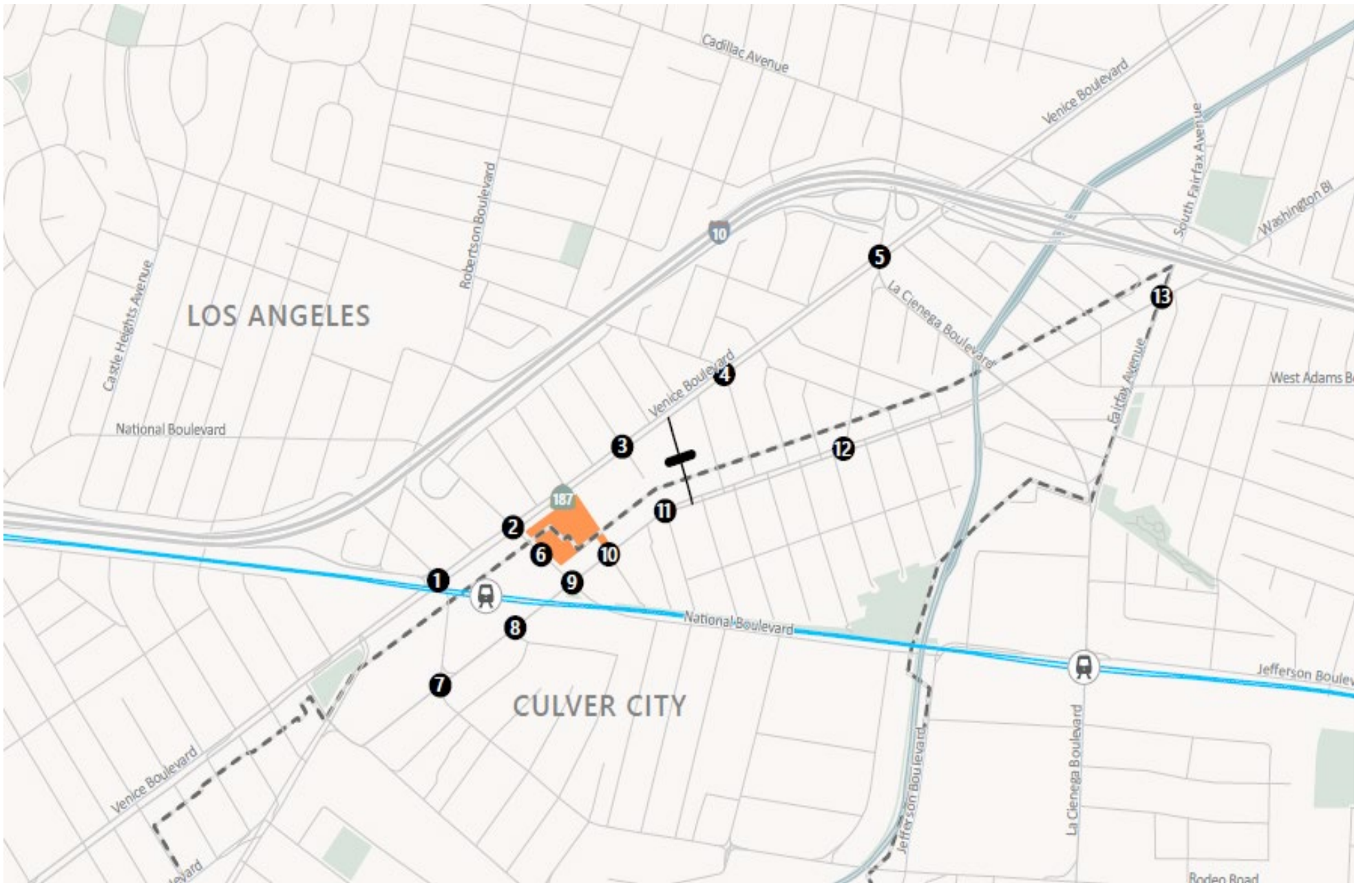


Figure 6

Peak Hour Traffic Volumes and Lane Configurations
Existing Conditions
Crossings Campus Project



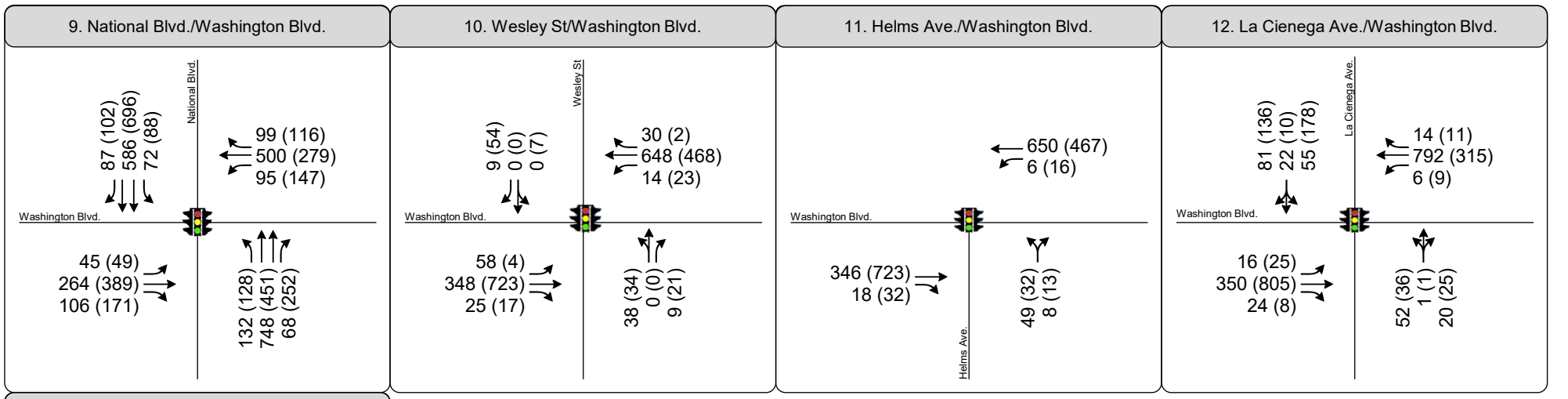


Figure 6

Peak Hour Traffic Volumes and Lane Configurations
Existing Conditions
Crossings Campus Project

TABLE 5
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	$\leq$ 10.0	Free Flow
B	> 10.0 and $\leq$ 20.0	Stable Flow (slight delays)
C	> 20.0 and $\leq$ 35.0	Stable Flow (acceptable delays)
D	> 35.0 and $\leq$ 55.0	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	> 55.0 and $\leq$ 80.0	Unstable flow (intolerable delay)
F	> 80.0	Forced flow (congested and queues fail to clear)

TABLE 6
LEVEL OF SERVICE DEFINITIONS FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Average Control Delay (seconds/vehicle)
A	$\leq$ 10.0
B	> 10.0 and $\leq$ 15.0
C	> 15.0 and $\leq$ 25.0
D	> 25.0 and $\leq$ 35.0
E	> 35.0 and $\leq$ 50.0
F	> 50.0

TABLE 7
INTERSECTION LEVELS OF SERVICE AND DELAY
EXISTING (2022) CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Existing 2022	
				Delay [a]	LOS
1	S Robertson Blvd & Venice Blvd & Exposition Blvd	Signal	AM	174	F
			PM	104	F
2	National Blvd & Venice Blvd	Signal	AM	31	C
			PM	31	C
3	Helms Ave & Venice Blvd	Signal	AM	4	A
			PM	15	B
4	Cattaraugus Ave & Venice Blvd	Signal	AM	13	B
			PM	16	B
5	La Cienega Blvd & Venice Blvd	Signal	AM	47	D
			PM	59	E
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	5	A
			PM	6	A
7	Higuera St/Robertson Blvd & Washington Blvd	Signal	AM	28	C
			PM	29	C
8	Landmark St & Washington Blvd	Signal	AM	9	A
			PM	10	B
9	National Blvd & Washington Blvd	Signal	AM	39	D
			PM	39	D
10	Wesley St/Driveway & Washington Blvd	Signal	AM	7	A
			PM	8	A
11	Helms Ave & Washington Blvd	Signal	AM	6	A
			PM	4	A
12	McManus Ave/La Cienega Ave & Washington Blvd	Signal	AM	25	C
			PM	63	E
13	Fairfax Ave & Washington Blvd	Signal	AM	128	F
			PM	61	E

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

Project Traffic

The development of trip generation estimates for the Project was a 3-step process: trip generation, trip distribution, and traffic assignment.

Project Traffic Generation

The Project would provide a total of 536,000 sf of new office floor area and remove the three existing buildings on the Project Site. The Culver City parcel is currently developed with two warehouse buildings totaling 18,821 sf. A 9,739 sf building currently functions as storage space and a 9,082 sf buildings is currently vacant. The balance of the Culver City parcel consists of surface parking and vehicular access that supports the existing uses on the Project Site. The Los Angeles parcel is currently improved with a single warehouse building, 51,5000 sf of office space. The Los Angeles parcel is also comprised of 34,726 sf furniture retail space. Prior to October 2020, 24,550 sf of the total furniture retail space was occupied. Because the uses on the Culver City parcel are vacant or do not current generate vehicle trips, they were not included as part of the existing use credit when developing the trip generation for the Project. For the Los Angeles parcel, the office space and only 24,550 sf of the total furniture retail space were included as part of the existing use credit. The remainder of the furniture space was unoccupied at the time the historic counts were taken.

Table 8 presents the trip rates used to estimate trip generation for the Project. Trip generation data published by the Institute of Transportation Engineers (ITE) in Trip Generation Manual (11th Edition, 2021) was used to estimate vehicle trip generation The ITE General Office Building rate (Land Use #710) was used for the proposed office use. ITE General Office Building rate and Furniture Stores rate (Land Use #890) were used for existing land use. Based on the Project's proximity to rail transit, a 25% walking, biking, and transit credit was taken for the Furniture Stores use. The General Office Building rate reflects the "Dense Multi-Use Urban" variant, which accounts for transit-related vehicle trip reduction, and therefore no further adjustment was made. The basis for these credit decisions is outlined in the TSCG.

After including the credits for existing uses, internal capture, and non-automotive travel, the Project is estimated to generate 403 trips (352 inbound/51 outbound) in the AM peak hour and 412 trips (64 inbound/348 trips outbound) in the PM peak hour.

Project Traffic Distribution

The geographic distribution of the traffic generated by the proposed Project depends on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which the employees and potential patrons of the proposed development are drawn, and the location of the Project in relation to the surrounding street system. A select zone analysis was conducted for the proposed uses using the City of Culver City TDFM to inform the general distribution pattern for this study. The distribution is illustrated in **Figure 7**.

Project Traffic Assignment

The traffic to be generated by the proposed Project was assigned to the street network using the distribution patterns described in **Figure 7**. The assignment of traffic volumes took into consideration the

locations of the proposed driveways on National Boulevard, Washington Boulevard, and Venice Boulevard as well as the turning movements permitted at the driveways. **Figure 8** provides the assignment of the proposed project-generated peak hour traffic volumes at the analyzed intersections during the AM and PM peak hours.

Existing Plus Project Volumes and Level of Service

The estimated Project traffic was added to the existing traffic volumes to estimate Existing plus Project traffic volumes. **Figure 9** shows turning movement traffic volumes for the Existing plus Project scenario.

Existing plus Project traffic volumes, presented in **Figure 9**, were analyzed to determine the intersection LOS and delay for each intersection. **Table 9** summarizes the Existing plus Project LOS. LOS E or F are projected at five of the 13 study intersections during at least one of the analyzed peak hours, including:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
2. National Blvd & Venice Blvd (PM Peak Hour)
5. La Cienega Boulevard & Venice Boulevard (PM Peak Hour)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (PM Peak Hour)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

Detailed LOS calculation worksheets are presented in **Appendix E**.

TABLE 8
PROJECT TRIP GENERATION ESTIMATES
CROSSINGS CAMPUS PROJECT

Land Use	ITE Land Use Code	Size	Trip Generation Rates						Trip Generation					
			AM Peak Hour			PM Peak Hour			AM Peak Hour Trips			PM Peak Hour		
			Rate [a]	In%	Out%	Rate [a]	In%	Out%	In	Out	Total	In	Out	Total
PROPOSED PROJECT														
Office	710 [b]	536.0 ksf	0.84	87%	13%	0.87	16%	84%	392	58	450	75	391	466
Culver City portion		*167.0 ksf*	*0.84*	*87%*	*13%*	*0.87*	*16%*	*84%*	*122*	*18*	*140*	*23*	*122*	*145*
Los Angeles portion		*369.0 ksf*	*0.84*	*87%*	*13%*	*0.87*	*16%*	*84%*	*270*	*40*	*310*	*51*	*270*	*321*
TOTAL DRIVEWAY TRIPS									392	58	450	75	391	466
EXISTING USE ADJUSTMENT [c]														
Office	710 [b]	51.5 ksf	0.84	87%	13%	0.87	16%	84%	37	6	43	7	38	45
Furniture Stores	890	24.6 ksf	0.26	71%	29%	0.52	47%	53%	4	2	6	6	7	13
Less: Walk/Bike/Transit Adjustment [d]			*25%*			*25%*			*(1)*	*(1)*	*(2)*	*(2)*	*(2)*	*(4)*
Net External Vehicle Trips									3	1	4	4	5	9
TOTAL EXISTING TRIPS									40	7	47	11	43	54
NET INCREMENTAL EXTERNAL TRIPS									**352**	**51**	**403**	**64**	**348**	**412**

Notes:

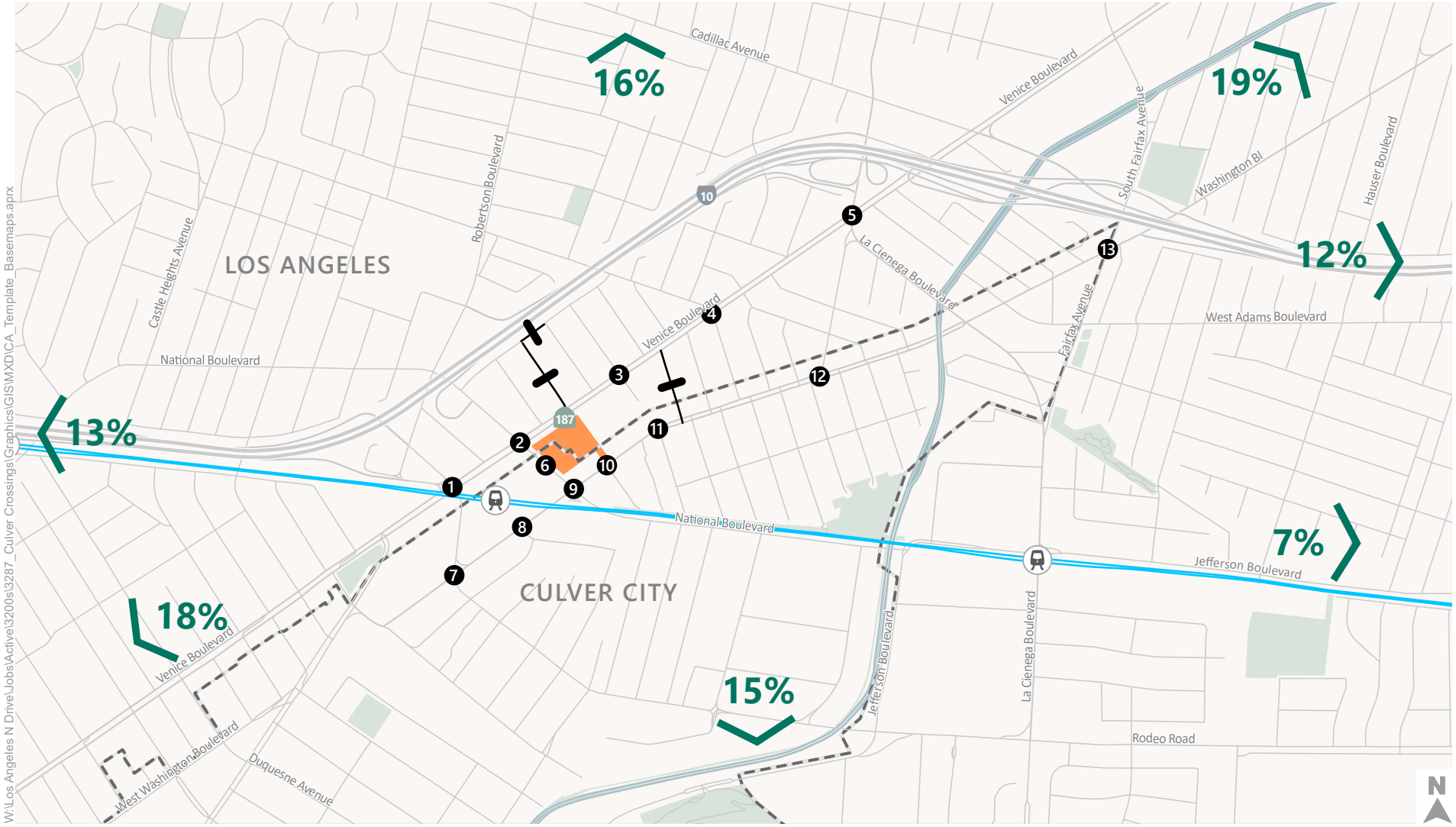
[a] Source: Institute of Transportation Engineers (ITE), *Trip Generation, 11th Edition* , 2021.

[b] These rates reflect the "Dense Multi-Use Urban" variant of the General Office Building typology.

These rates account for transit-related vehicle trip reduction, so no further adjustment was made.

[c] Existing land uses information provided by the applicant of the project.

[d] Per the Culver City Transportation Guidelines, a maximum of 25% trip credit can be taken for land uses within 1/4 mile of a rail transit station. The Project site is less than 1/4 mile from the Metro E Line Culver City Station. The rates used for ITE 890 Furniture Stores reflect the "General Urban/Suburban" variant. Therefore, a 25% transit adjustment was taken for this existing land use.



Study Intersections
Study Roadway Segments
Metro Rail Stations
Metro E Line
Cities
Parks
Project Site

Figure 7

Trip Distribution

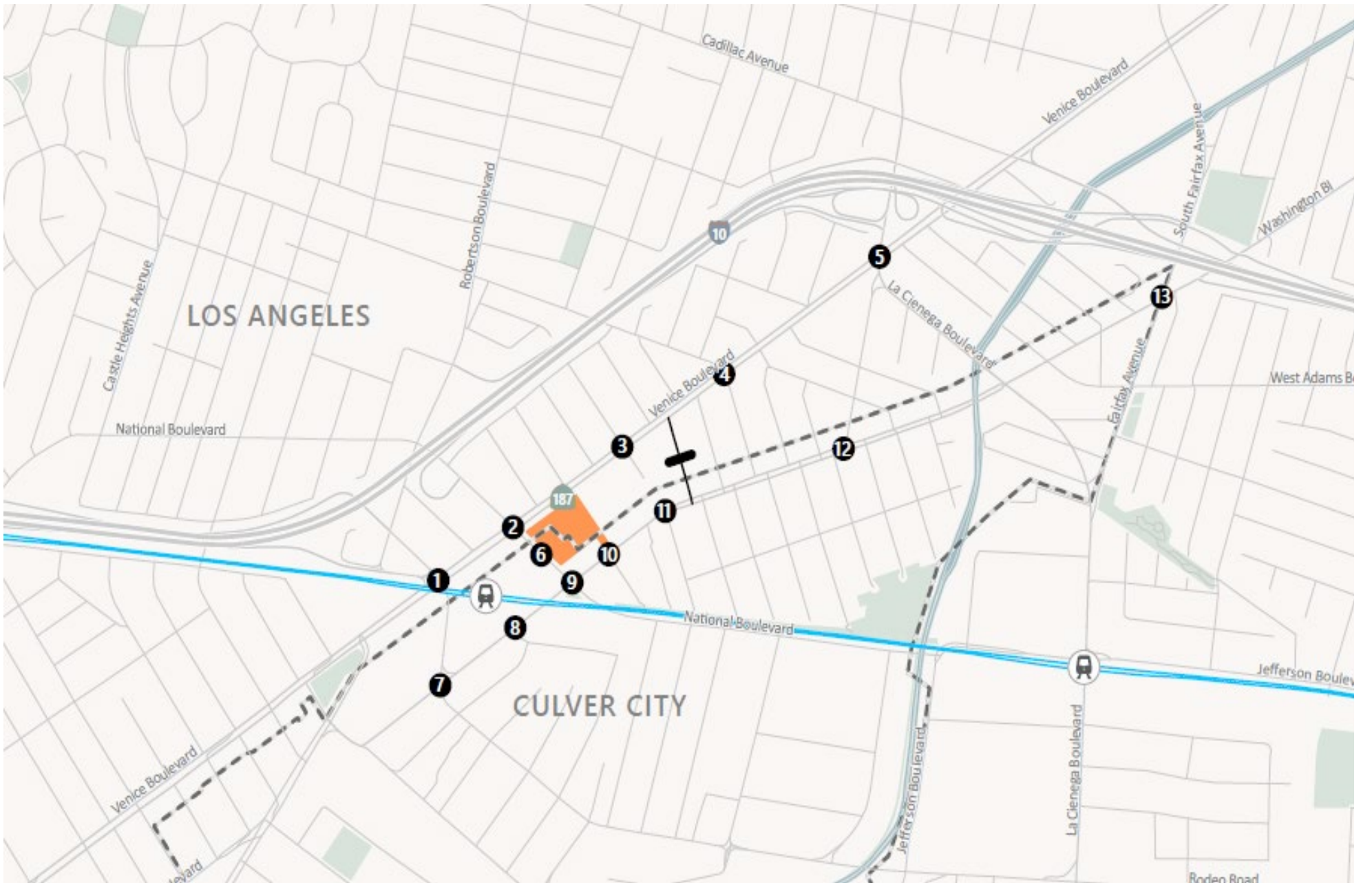
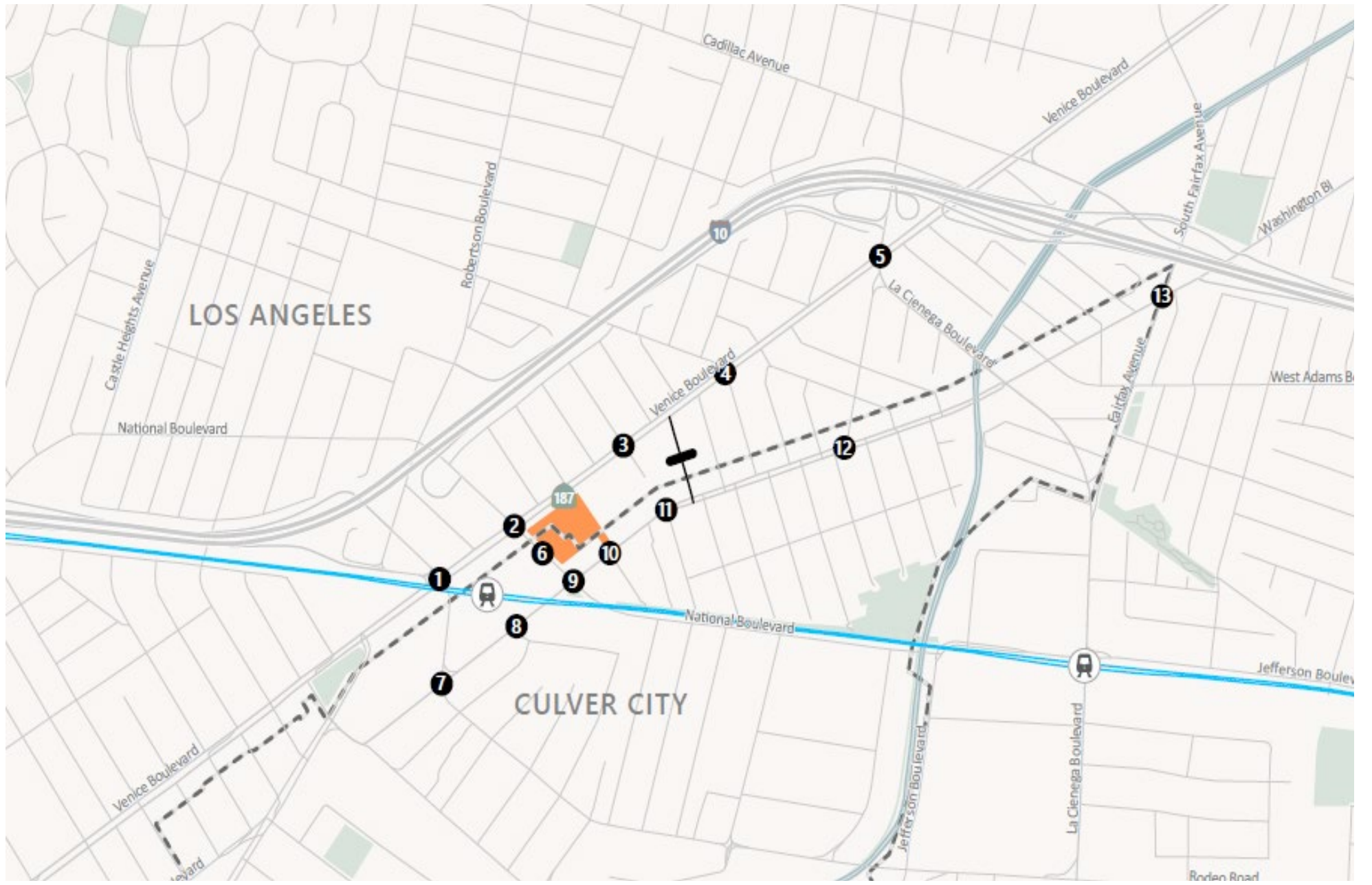


Figure 1

Peak Hour Traffic Volumes and Lane Configurations
Project Only - Unsignalized Alternative
Crossings Campus Project



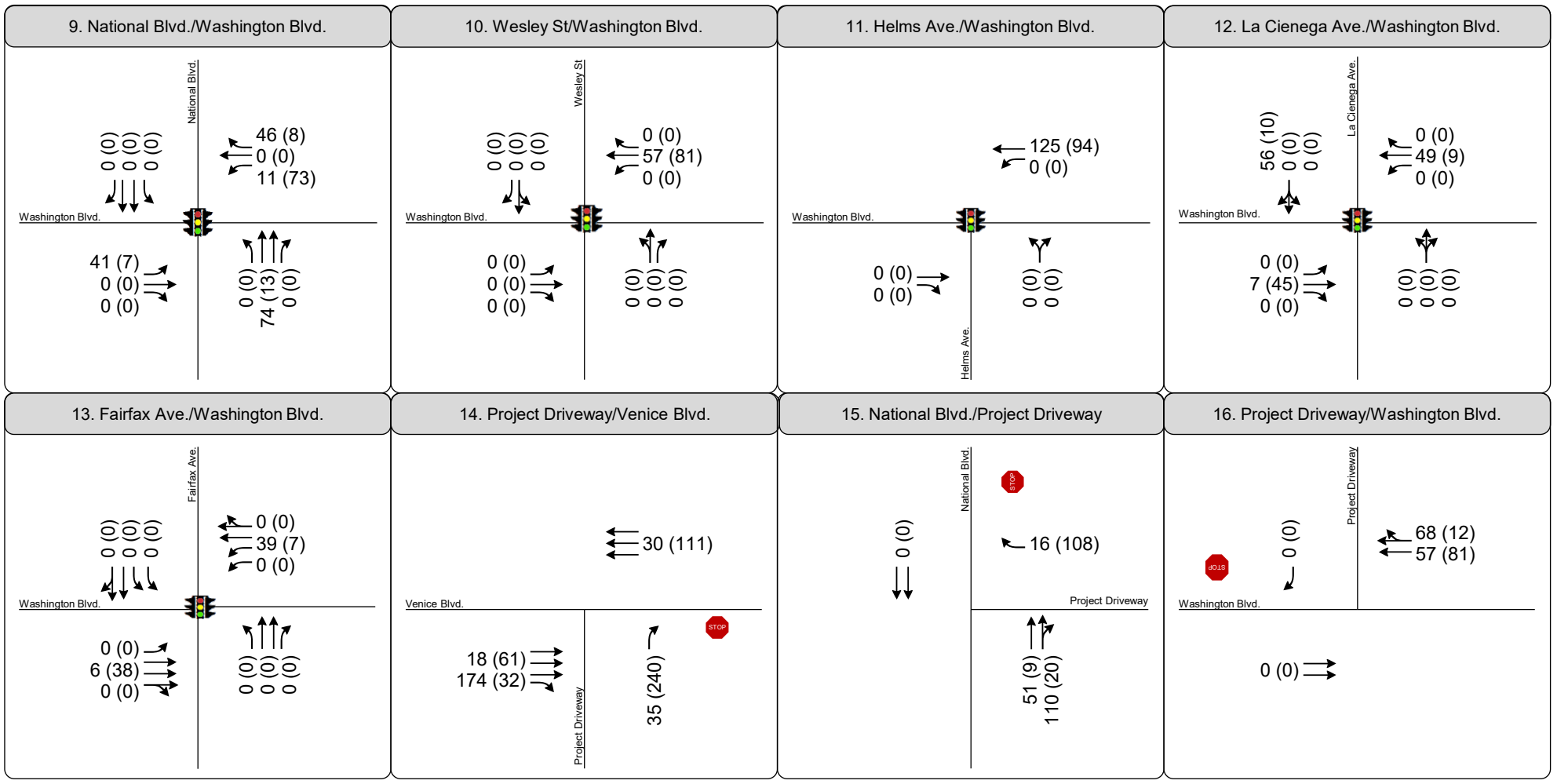
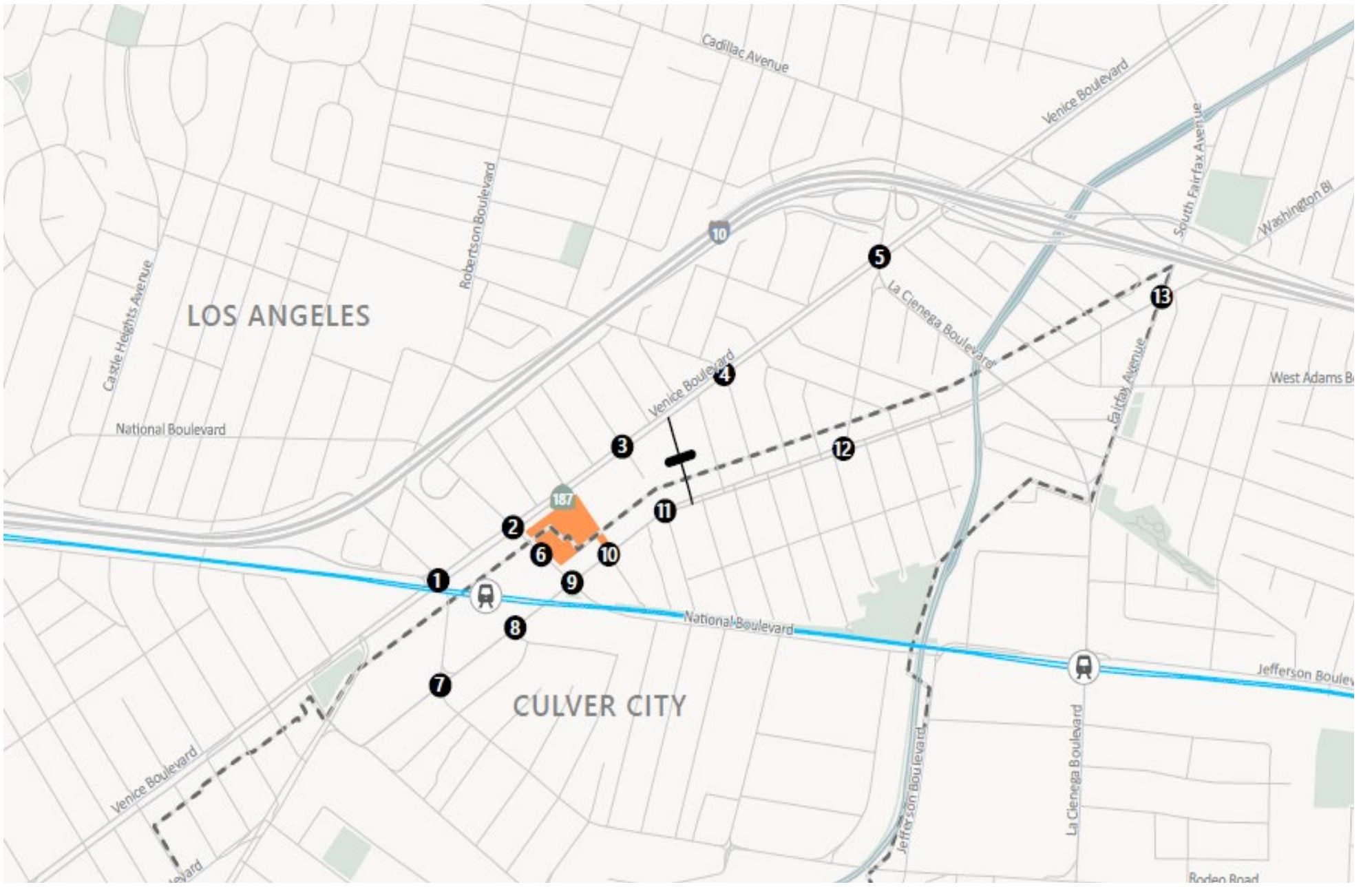


Figure 1

Peak Hour Traffic Volumes and Lane Configurations
Project Only - Unsignalized Alternative
Crossings Campus Project



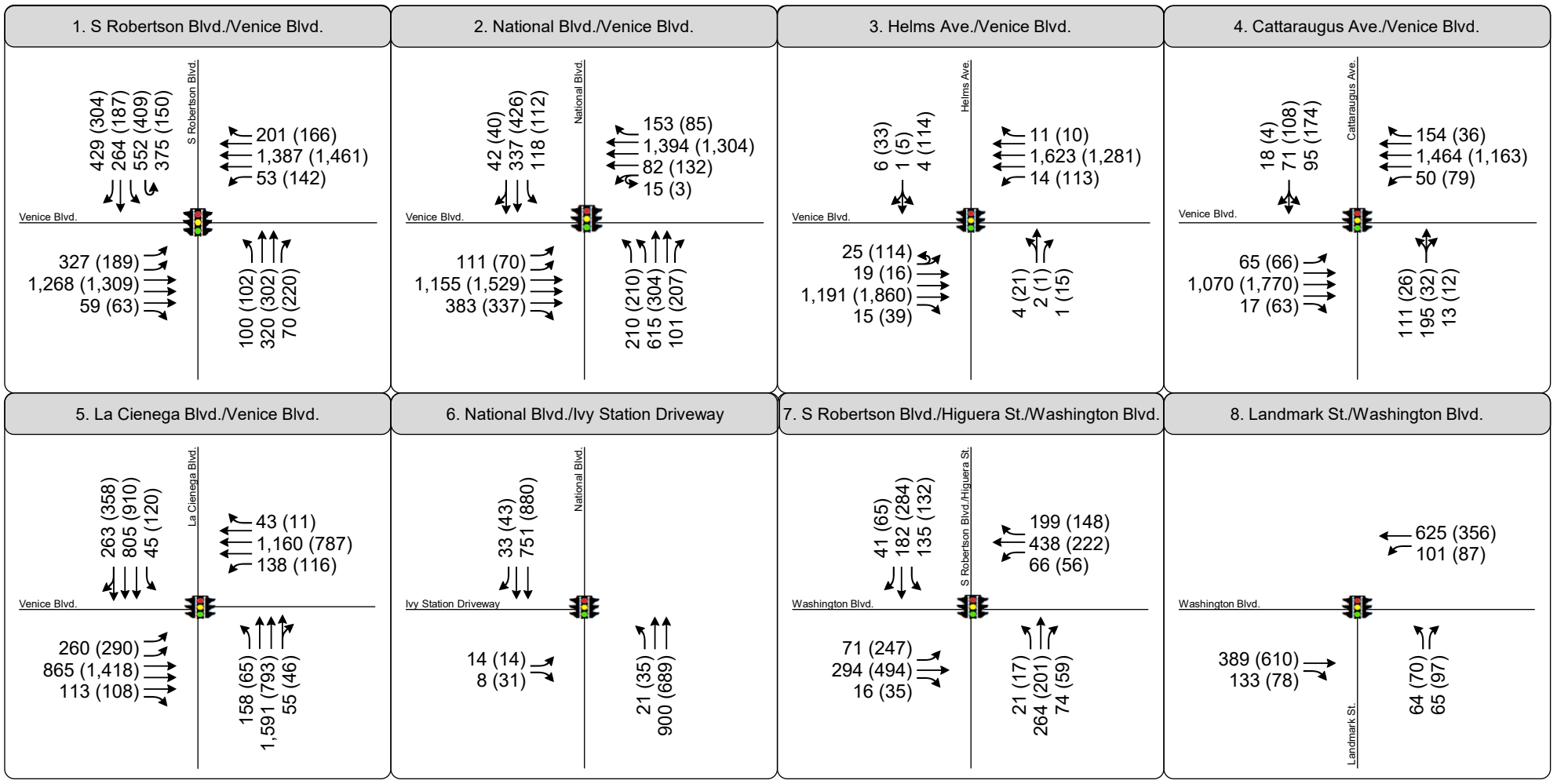
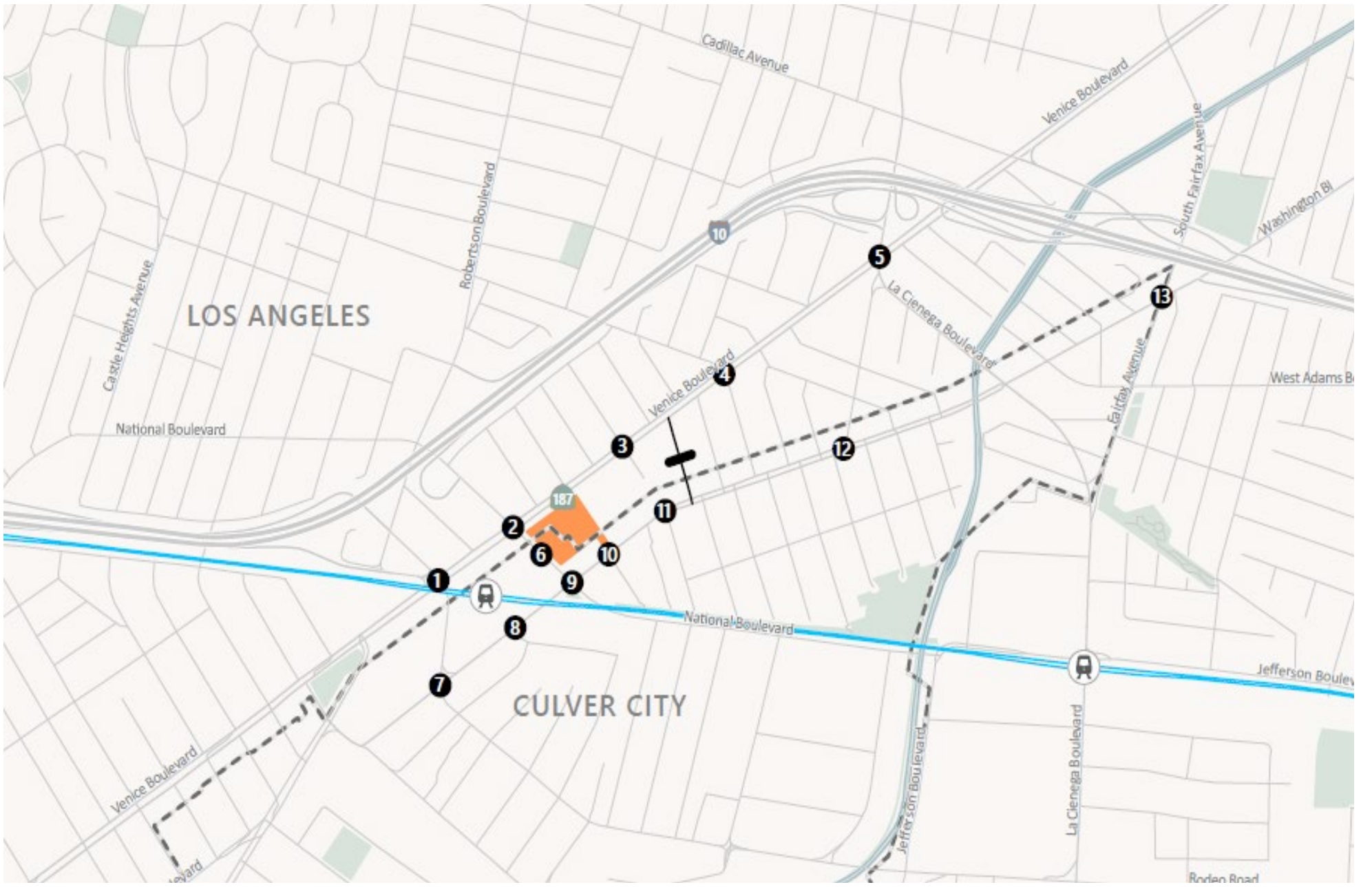


Figure 9

Peak Hour Traffic Volumes and Lane Configurations
Existing + Project Conditions
Crossings Campus Project



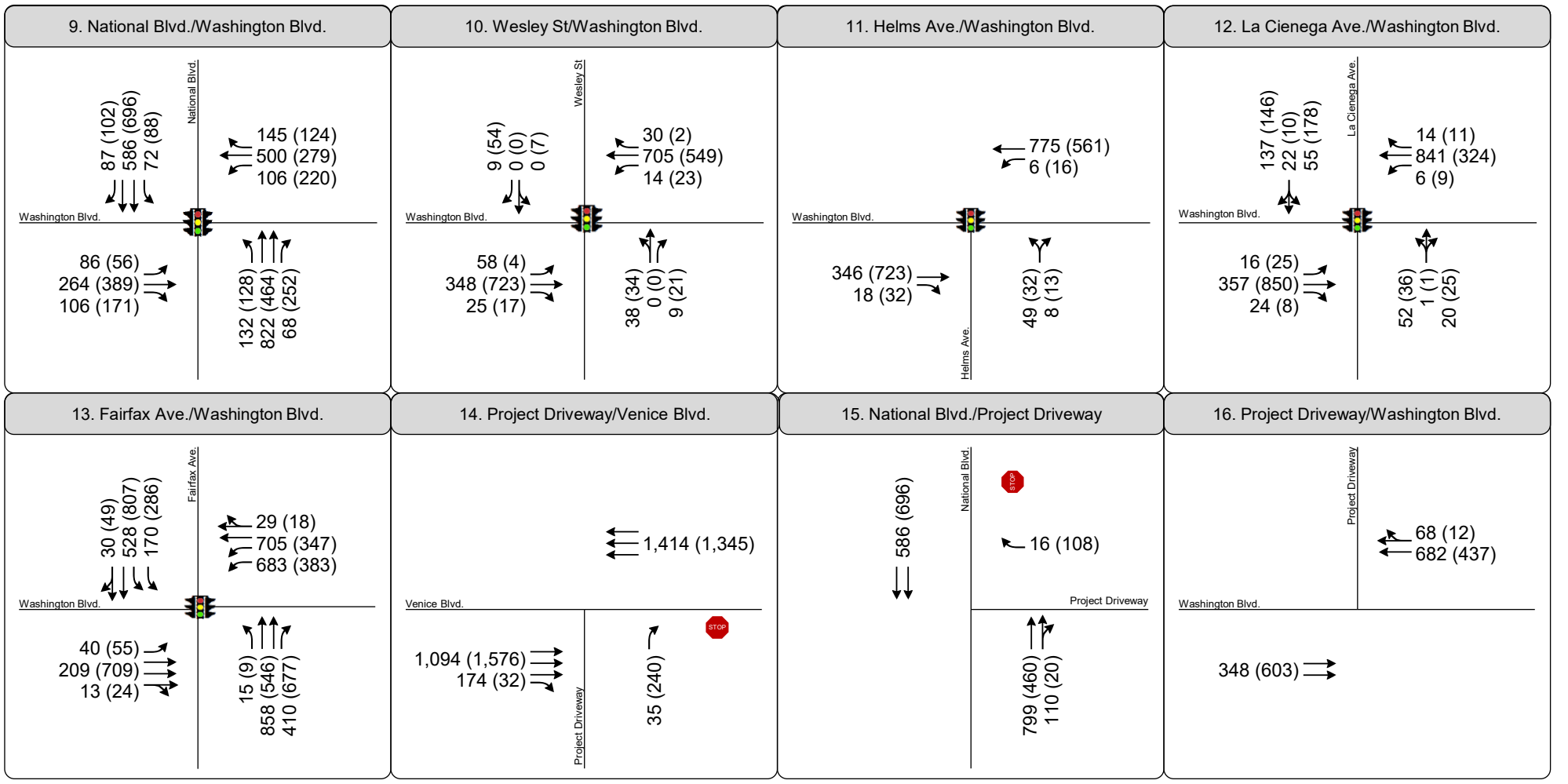


Figure 9

Peak Hour Traffic Volumes and Lane Configurations
Existing + Project Conditions
Crossings Campus Project

TABLE 9
INTERSECTION LEVELS OF SERVICE AND DELAY
EXISTING + PROJECT CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Existing (2022)		Existing (2022) + Project	
				Delay [a]	LOS	Delay [a]	LOS
1	S Robertson Blvd & Venice Blvd & Exposition Blvd	Signal	AM	174	F	193	F
			PM	104	F	109	F
2	National Blvd & Venice Blvd	Signal	AM	31	C	43	D
			PM	31	C	64	E
3	Helms Ave & Venice Blvd	Signal	AM	4	A	5	A
			PM	15	B	21	C
4	Cattaraugus Ave & Venice Blvd	Signal	AM	13	B	13	B
			PM	16	B	16	B
5	La Cienega Blvd & Venice Blvd	Signal	AM	47	D	48	D
			PM	59	E	65	E
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	5	A	5	A
			PM	6	A	7	A
7	Higuera St/Robertson Blvd & Washington Blvd	Signal	AM	28	C	29	C
			PM	29	C	29	C
8	Landmark St & Washington Blvd	Signal	AM	9	A	9	A
			PM	10	B	11	B
9	National Blvd & Washington Blvd	Signal	AM	39	D	40	D
			PM	39	D	43	D
10	Wesley St/Driveway & Washington Blvd	Signal	AM	7	A	10	A
			PM	8	A	9	A
11	Helms Ave & Washington Blvd	Signal	AM	6	A	6	A
			PM	4	A	4	A
12	McManus Ave/La Cienega Ave & Washington Blvd	Signal	AM	25	C	32	C
			PM	63	E	79	E
13	Fairfax Ave & Washington Blvd	Signal	AM	128	F	127	F
			PM	61	E	61	E

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

Future Year (2026) Volumes and Level of Service

In order to evaluate the potential effects of the proposed Project on the local street system, it was necessary to develop estimates of Future Year traffic conditions both with and without the Project. Future Year traffic volumes without the Project are first estimated, representing the Future Year conditions. The traffic generated by the proposed Project is then estimated and separately assigned to the surrounding street system. The sum of the Future Year and Project-generated traffic represents Future Year plus Project traffic conditions.

The Future Year traffic projections reflect changes in traffic from two primary sources: background or ambient growth in the existing traffic volumes to reflect the effects of overall regional growth both in and outside of the study area, and traffic generated by specific projects in, or in the vicinity of, the study area. These factors are described below.

Areawide Traffic Growth

To provide a conservative short-term analysis, traffic volumes in the vicinity of the study area were projected to increase at a rate of about 0.8% per year, which was calculated using the Culver City TDFM. With the assumed completion date of 2026, the existing baseline 2022 traffic volumes were adjusted upward by a factor of 0.8% for four years to reflect areawide regional growth up to Year 2026.

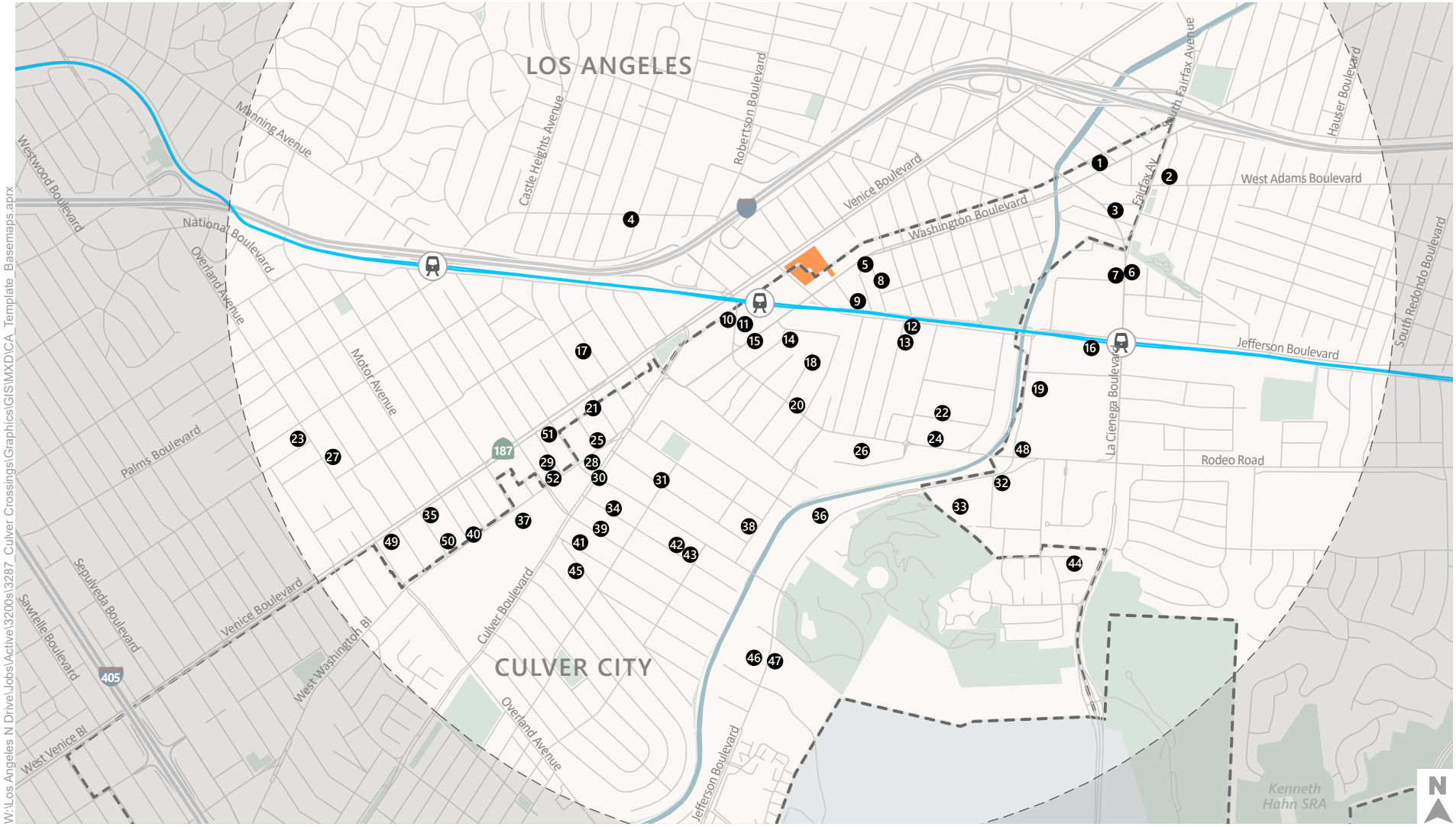
Related Projects Traffic Generation

The second major source of traffic growth in the study area is from specific planned development projects, also called related projects, expected to be built in the vicinity of the proposed Project Site prior to Project opening. Data describing related projects in the area was developed based on information obtained from Culver City and City of Los Angeles. A total of 52 related projects were identified in the study area as summarized in **Table 10**. It was conservatively assumed that all 52 related projects would be completed and occupied by the Future year of this Project. Trip generation estimates for each of the related projects were obtained from Culver City and the Los Angeles Department of Transportation or developed according to ITE (11th Edition) rates. **Figure 10** displays the locations of the related projects. **Figure 11** illustrates the assignment of this traffic at each of the study intersections. Related project traffic was distributed across study intersections using assumptions found in their respective transportation studies or the travel demand model.

TABLE 10
RELATED PROJECTS
TRIP GENERATION ESTIMATES
CROSSINGS CAMPUS PROJECT

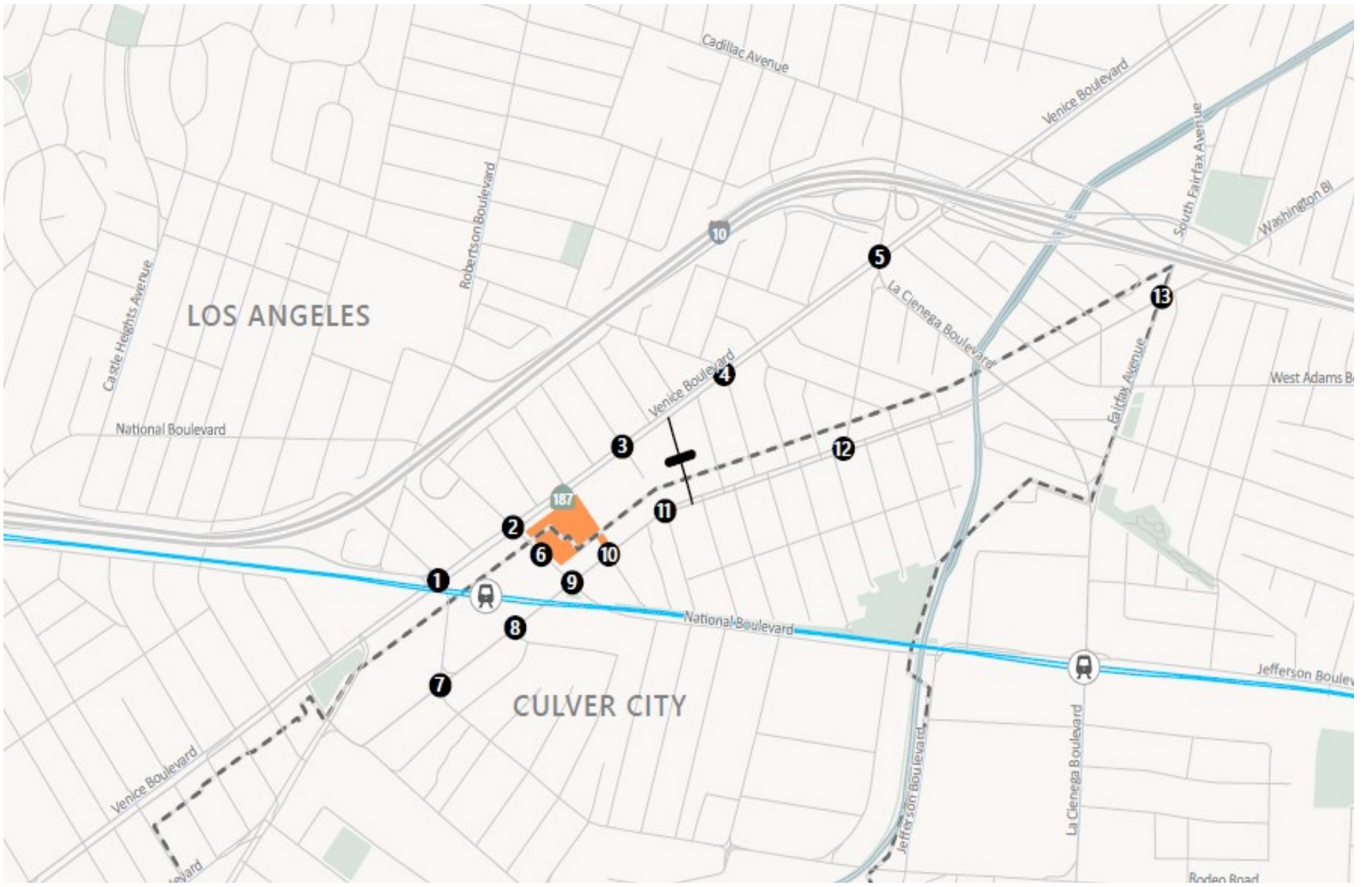
No.	Project Location	Land Use [a]	Size		Trip Generation					
					AM			PM		
					IN	OUT	TOTAL	IN	OUT	TOTAL
1	5863 Washington Boulevard	Creative Office	17.500	ksf	23	3	27	4	21	25
2	5773 W Adams Boulevard	Apartments	65	DU	15	22	37	20	12	32
		Retail	2.300	ksf						
3	3030 La Cienega Boulevard	Retail	1.250	ksf	1	0	1	2	3	5
4	3301 S Canfield Avenue	Apartments	50	DU	5	11	16	12	8	20
5	8700 Washington Boulevard	Apartments	199	DU	-27	24	-2	17	-5	11
		Live/Work Office	17.250	ksf						
		Restaurant	5.000	ksf						
		Retail	17.750	ksf						
6	3200 S La Cienega Boulevard	Apartments	254	DU						
7	3321 S La Cienega Boulevard	Mixed Use Apartments	1218	DU	319	419	737	467	382	849
		Office	200.000	ksf						
		Retail	100.000	ksf						
8	3336 Helms Avenue	Condominiums	6	DU	1	2	3	2	1	3
9	3434 Wesley Street	Apartments	15	DU	13	5	18	6	14	20
		Office	14.237	ksf						
10	3727 Robertson Boulevard	Apartments	12	DU	5	6	11	4	8	12
		Commercial	3.950	ksf						
11	3710 Robertson Boulevard	Apartments	141	DU	33	-6	27	45	48	93
		Creative Office	64.200	ksf						
		Commercial	30.042	ksf						
12	8570 National Boulevard	Office	24.000	ksf	38	8	46	19	42	61
		Retail	4.000	ksf						
13	3516 Schaefer Street	Creative Office	9.338	ksf	9	2	11	2	9	11
14	3939 Landmark Street	School	50	students	25	21	46	6	7	13
15	8888 Washington Boulevard	Office	56.559	ksf	82	18	100	33	91	124
		Retail	5.972	ksf						
16	3401 S La Cienega Boulevard	Apartments	260	DU	197	75	272	81	205	286
		Office	277.543	ksf						
		Retail	2.869	ksf						
17	3739 S Cardiff Avenue	Apartments	69	DU	6	22	28	22	11	33
18	8902 Hubbard	Condominiums	1	DU	0	0	0	1	0	1
19	5860 W Jefferson Boulevard	Office	344.947	ksf	292	48	340	54	283	337
20	4116 Higuera Street	Condominiums	1	DU	0	0	0	1	0	1
21	3817 Watseka Avenue	Office	149.439	ksf	200	27	227	37	179	215
22	8511 Warner Drive	Retail/Restaurant	51.520	ksf	71	53	124	123	107	230
23	3577 S Overland Avenue	Apartments	119	DU	12	25	37	29	16	45
		Restaurant	2.000	ksf						
24	8509 Higuera Street	School	100	students	50	41	91	12	14	26
25	9735 Washington Boulevard	Office	55.477	ksf	62	4	66	7	45	52
		Retail	12.249	ksf						
		Restaurant	4.147	ksf						
26	8631 Hayden Place	Creative Office	230.000	ksf	308	42	350	56	275	331
27	3664 S Overland Avenue	Apartments	187.00	DU	21	46	67	60	36	96
		Restaurant	3.600	ksf						
28	9814 Washington Boulevard	Theater	200	seats	2	0	2	9	18	27
29	3841 S Dunn Drive	Apartments	207	DU	-7	32	25	-2	-18	-20
30	LA County	Community College	92.000	ksf	779	183	962	514	402	917
31	4080 Lafayette Place	Condominiums	5	DU	0	1	1	1	0	1
32	5950 W Jefferson Boulevard	Office	64.000	ksf	65	13	78	23	58	81
		Retail	2.000	ksf						
		Restaurant	4.000	ksf						
33	6024 W Jefferson Boulevard	Office	90.054	ksf	194	68	262	55	168	223
		Warehouse	50.775	ksf						
		Manufacturing	53.762	ksf						
		Coffee Shop	2.200	ksf						
34	4044 Lincoln	Apartments	4	DU	0	2	2	1	1	2
35	10424 W Venice Boulevard	Mixed Use Apartments	79	DU	7	22	29	20	8	28
36	9405 Jefferson Boulevard	Office	65.800	ksf	88	12	100	16	79	95
37	10202 Washington Boulevard	Office	45.850	ksf	61	9	70	11	55	66
38	9615 Lucerne Avenue	Condominiums	2	DU	0	0	0	1	0	1
39	4044 Madison Avenue	Condominiums	4	DU	0	1	1	1	0	1
40	10375 W Washington Boulevard	Condominiums	139	DU	-3	35	32	31	11	42
		Retail	1.969	ksf						
41	4030 La Salle Avenue	Condominiums	4	DU	0	1	1	1	1	2
42	4164 Lincoln	Condominiums	2	DU	0	1	1	1	0	1
43	4170 Lincoln	Condominiums	2	DU	0	1	1	1	0	1
44	3814 Lenawee Avenue	Single Family Homes	8	DU	15	12	27	16	21	37
		Assisted Living Facility	110	beds						
45	4051 Jackson Avenue	Condominiums	9	DU	0	1	1	1	1	2
46	9925 Jefferson Boulevard	Creative Office	51.178	ksf	68	10	78	13	61	74
47	9930 Jefferson Boulevard	Media Studio	84.475	ksf	113	15	128	21	101	122
48	5870 Jefferson Boulevard	Office	328.867	ksf	440	60	500	81	393	474
49	10626 W Venice Boulevard	Apartments	109	DU	14	34	48	37	28	64
		Retail	3.318	ksf						
50	10417 W Washington Blvd	Apartments	111	DU	12	34	46	33	23	56
		Retail	2.000	ksf						
51	9900 W Venice Boulevard	Apartments	56	DU	9	19	28	23	18	42
		Retail	3.000	ksf						
52	10003 Washington Boulevard	Apartments	207	DU	18	59	77	49	31	81

Notes:
du = dwelling unit; ksf = one-thousand square feet
Related projects list based on information provided by City of Culver City in November 2021 and LADOT in October 2021.



Related Projects
Project Site
1.5-mile radius from Project Site
Metro Rail Stations
Metro E Line
Cities
Parks

Figure X
Related Projects



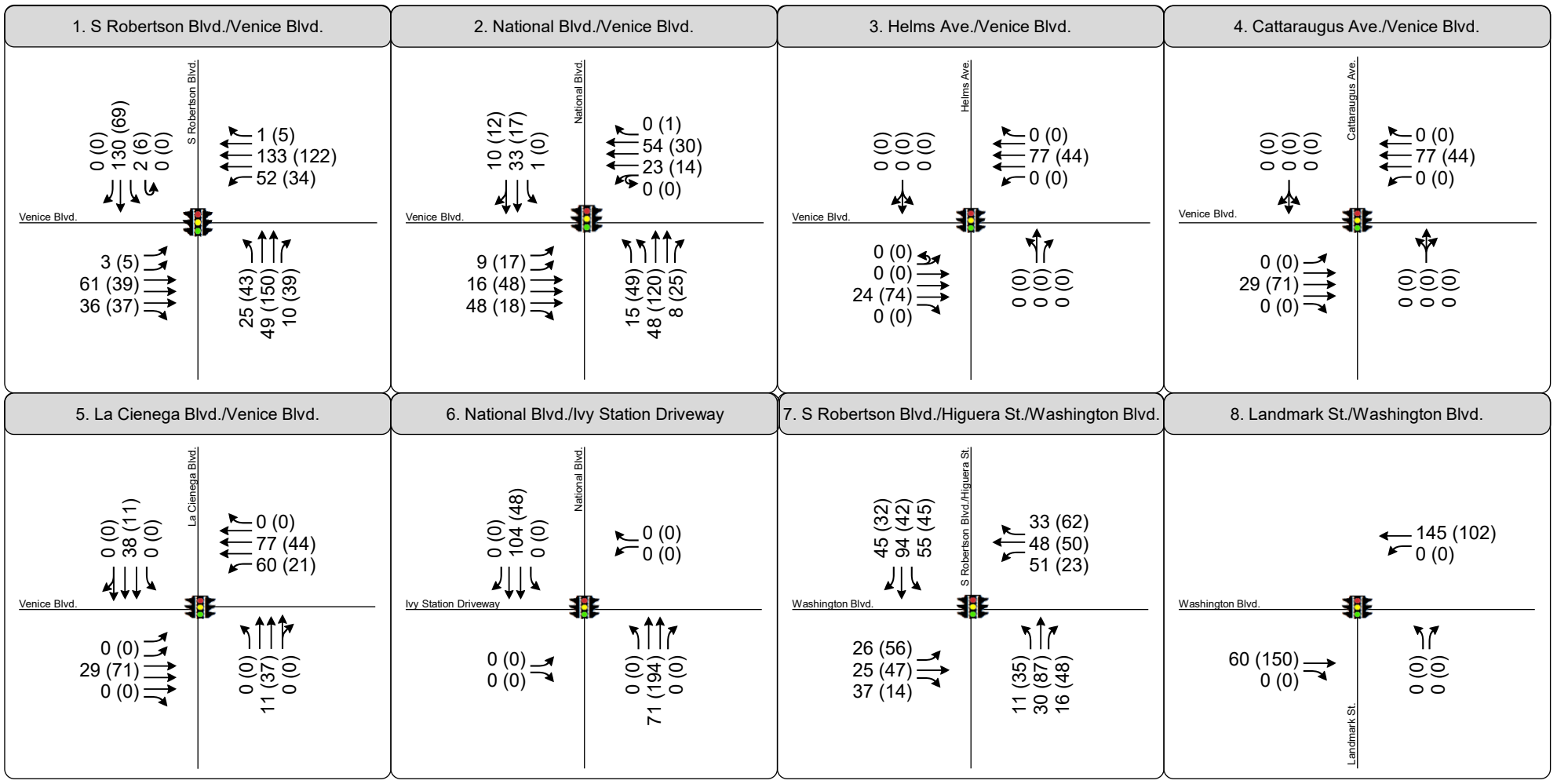
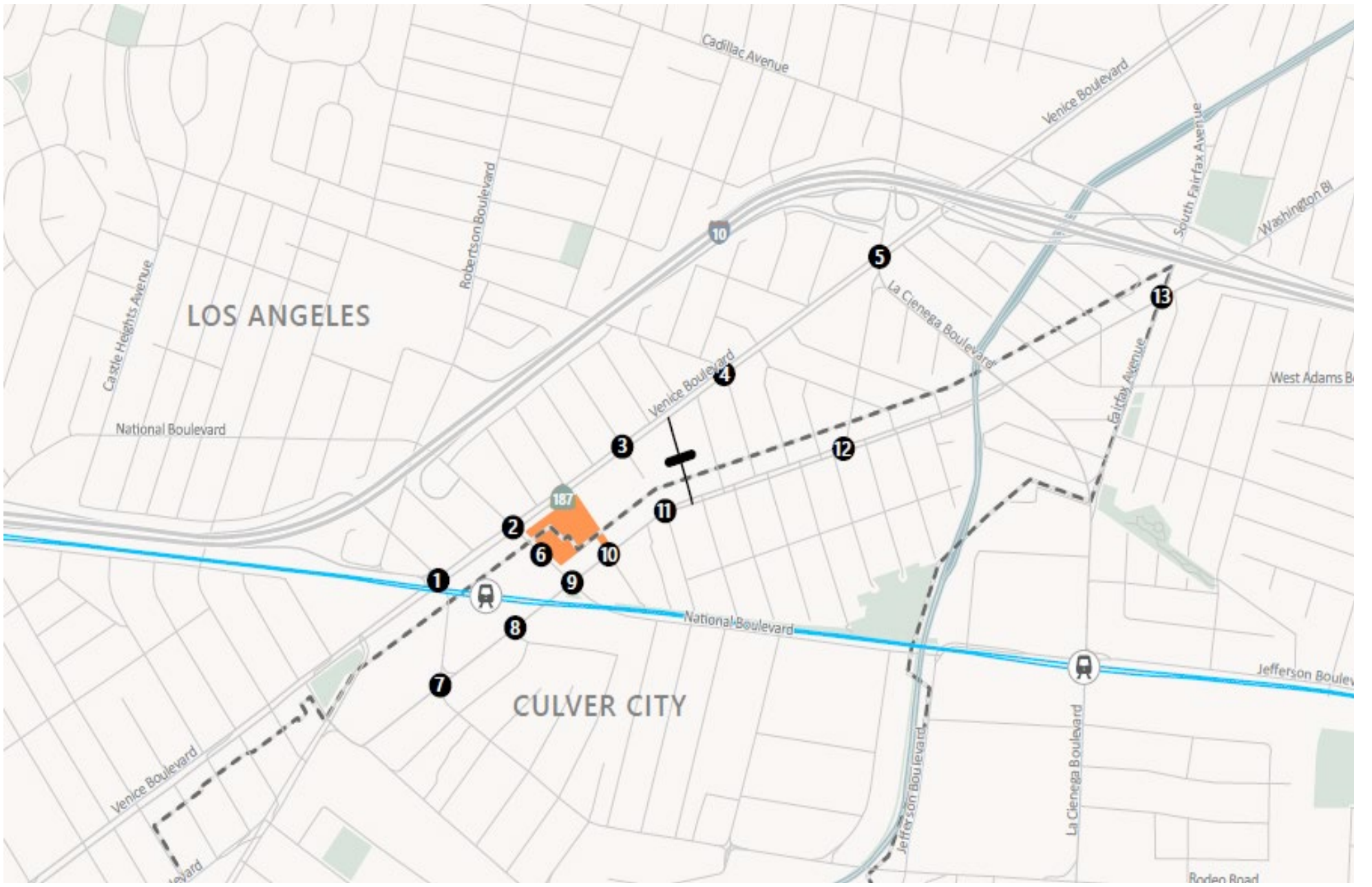


Figure 11

Peak Hour Traffic Volumes and Lane Configurations
Related Projects
Crossings Campus Project



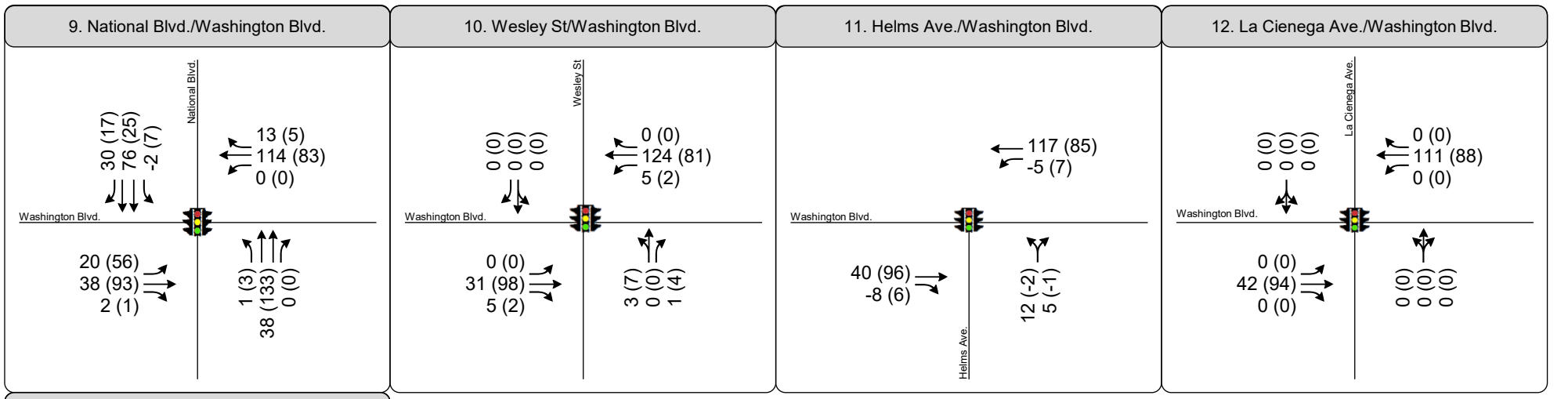


Figure 11

Peak Hour Traffic Volumes and Lane Configurations
Related Projects
Crossings Campus Project

Future Year (2026) Volumes and Level of Service

Figure 12 shows the Future Year (2026) turning movement traffic volumes that include the estimated the ambient growth and related projects volumes.

Future Year (2026) traffic volumes, presented in **Figure 15**, were analyzed to determine the intersection LOS and delay at each intersection. Because traffic signals in the City are monitored and adjusted according to changing traffic conditions, it was assumed that traffic signal timing splits at study intersections would be adjusted in any future year operations analysis. **Table 11** summarizes the Future Year LOS and delay. LOS E or F are projected at four of the 11 study intersections during at least one of the analyzed peak hours, including:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
5. La Cienega Boulevard & Venice Boulevard (PM Peak Hour)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (PM Peak Hour)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

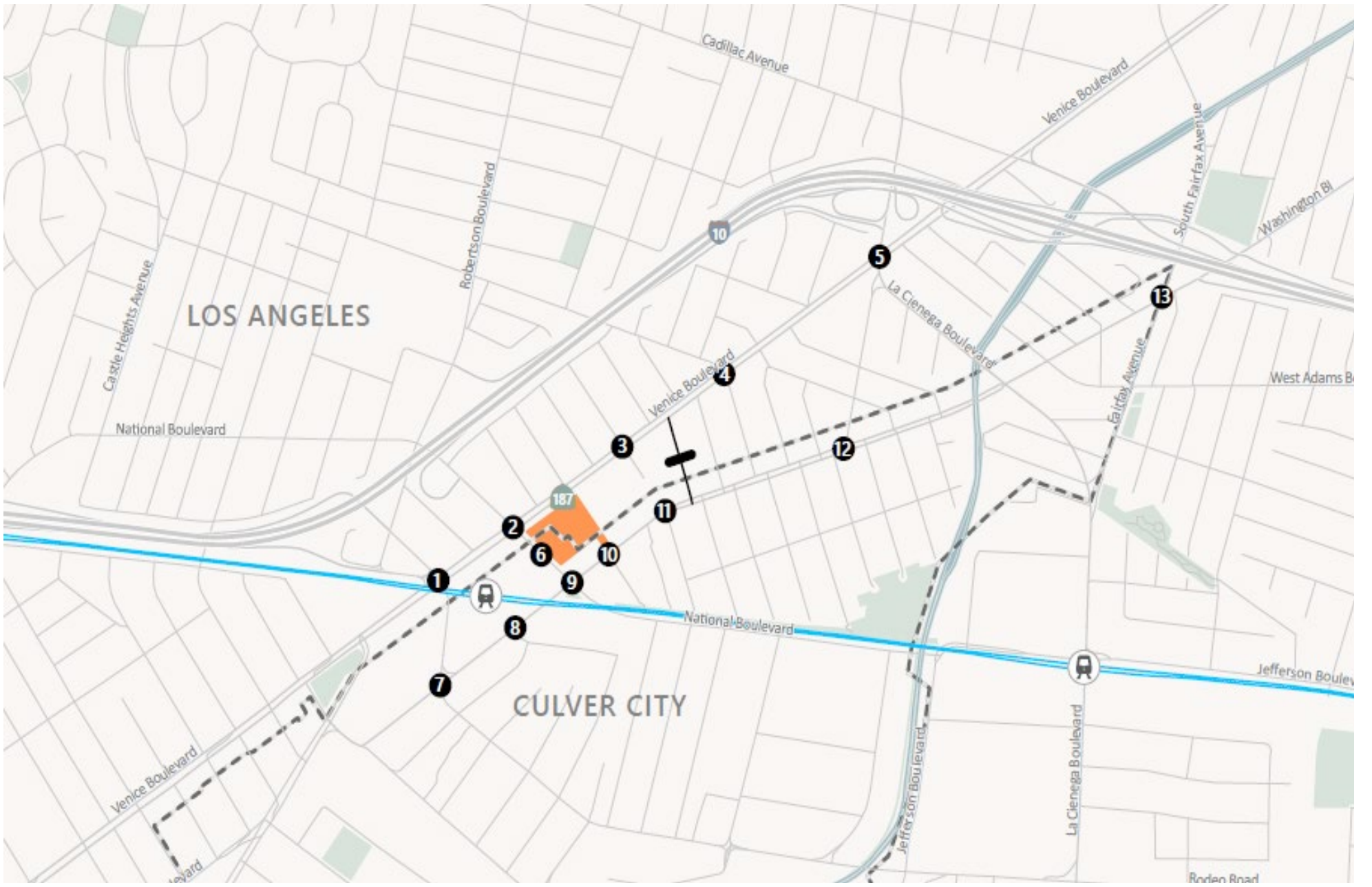
Future Year Plus Project Volumes and Level of Service

The estimated Project traffic was added to the Future Year (2026) traffic volumes to estimate Future Year Plus Project traffic volumes. **Figure 13** shows the Future Year Plus Project turning movement traffic volumes.

Future Year Plus Project traffic volumes, presented in **Figure 13**, were analyzed to determine the intersection LOS and delay for each intersection. **Table 11** summarizes the Future Year plus Project LOS. LOS E or F are projected at five of the 11 study intersections during at least one of the analyzed peak hours, including:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
2. National Blvd & Venice Blvd (PM Peak Hour)
5. La Cienega Boulevard & Venice Boulevard (PM Peak Hour)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (PM Peak Hour)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

Detailed LOS calculation worksheets are presented in **Appendix E**.



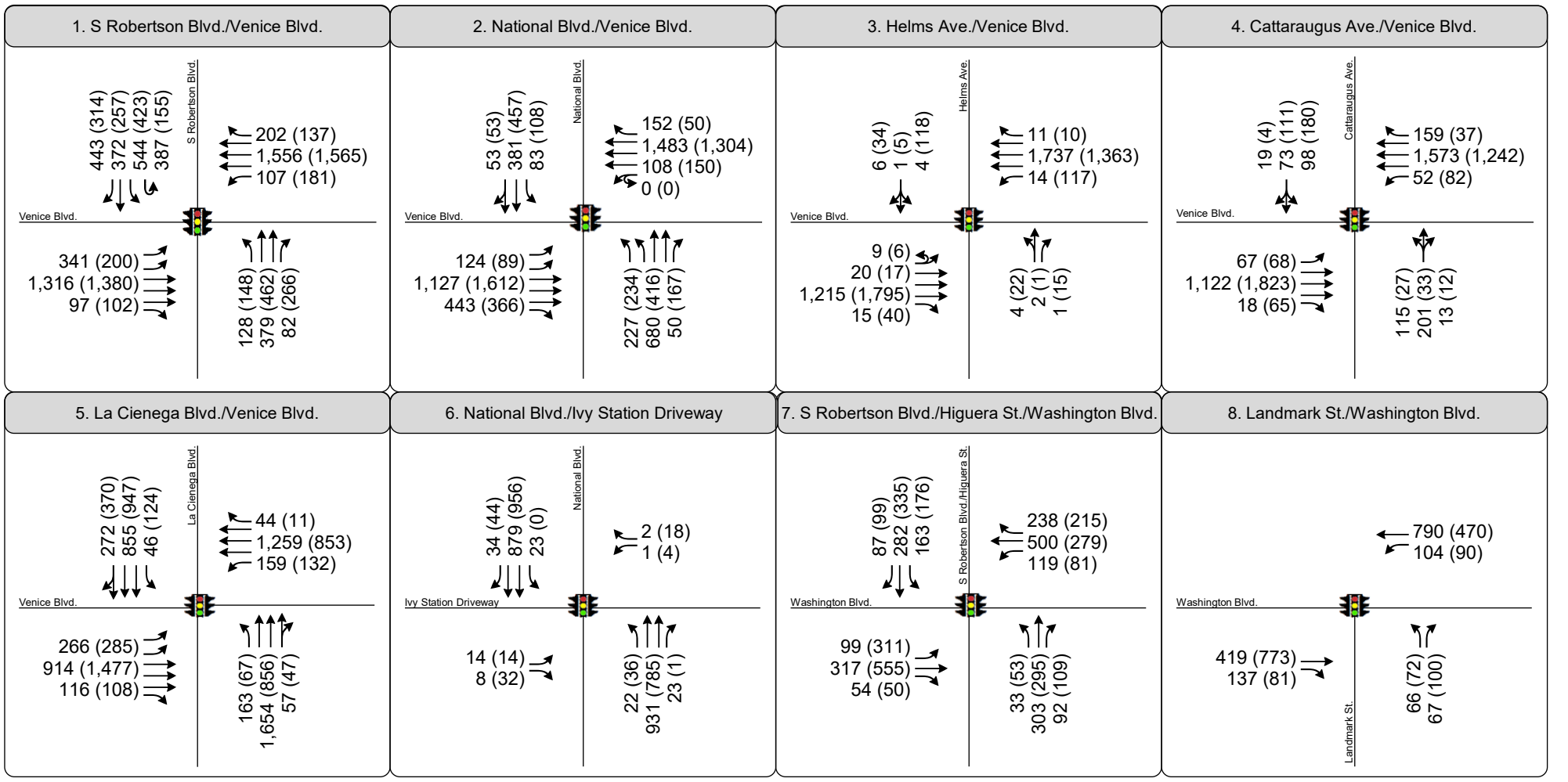
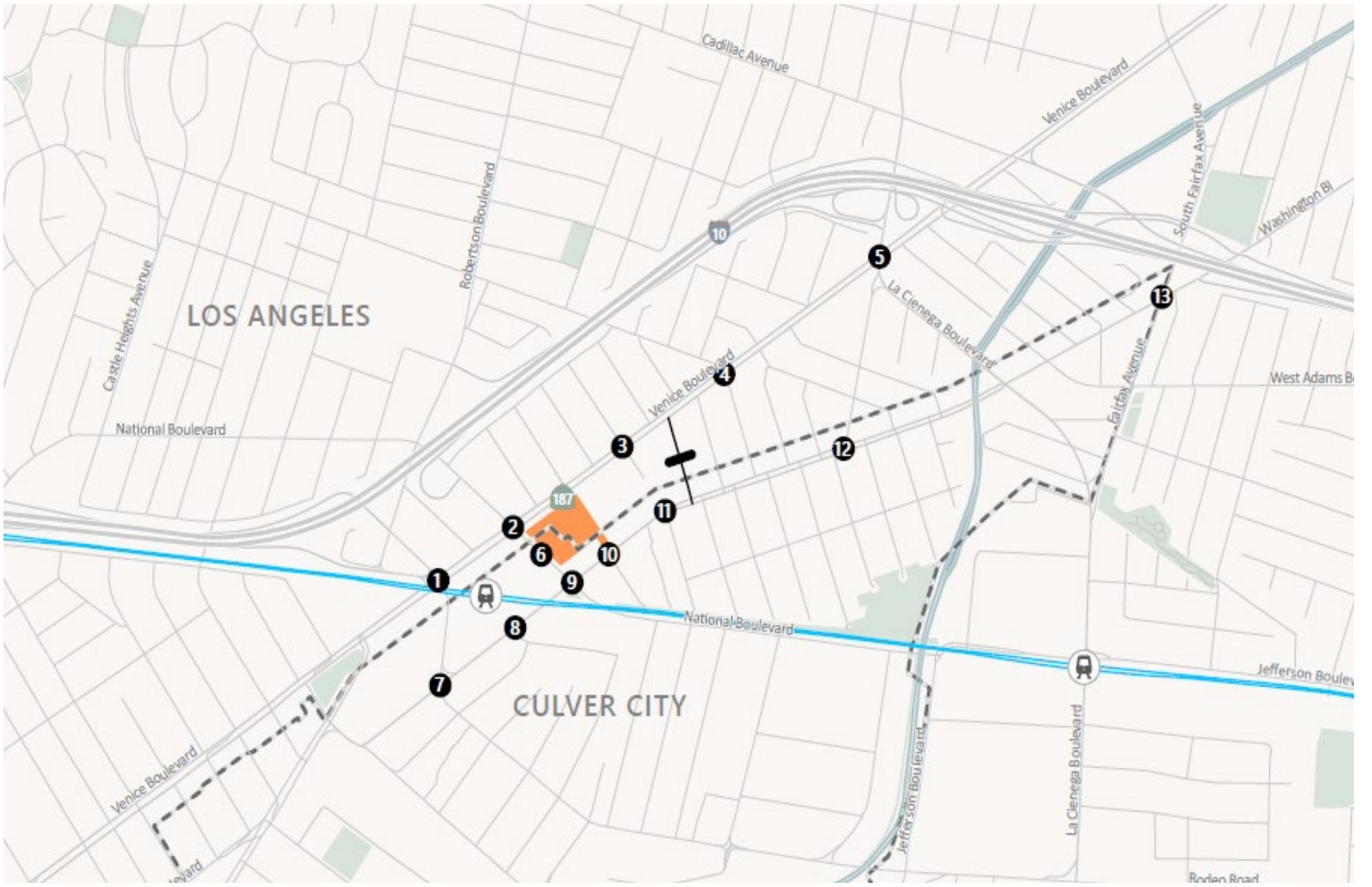


Figure 12

Peak Hour Traffic Volumes and Lane Configurations
Future Base (2026) Conditions
Crossings Campus Project



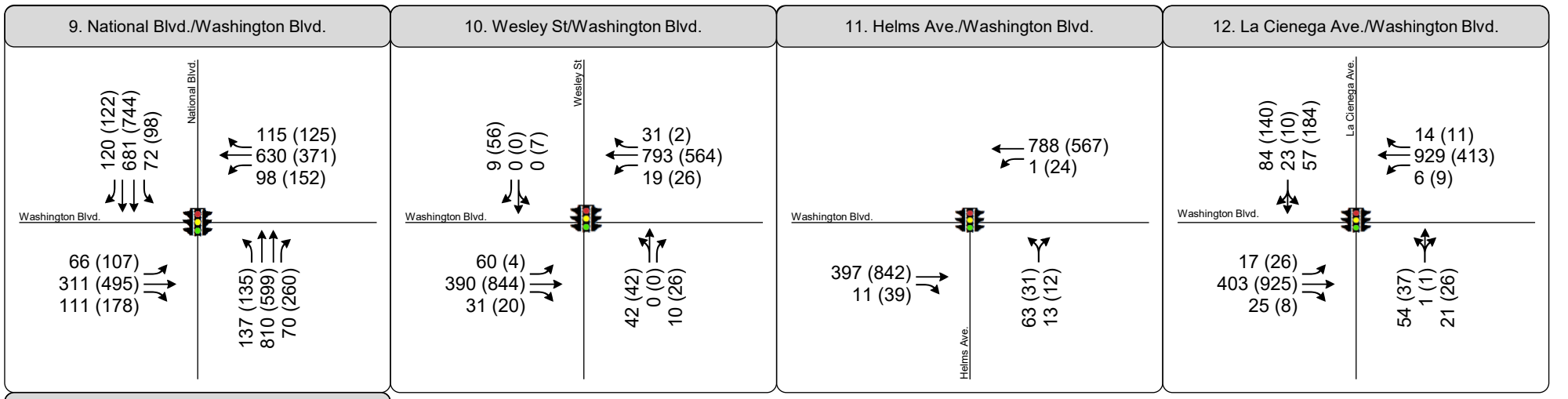
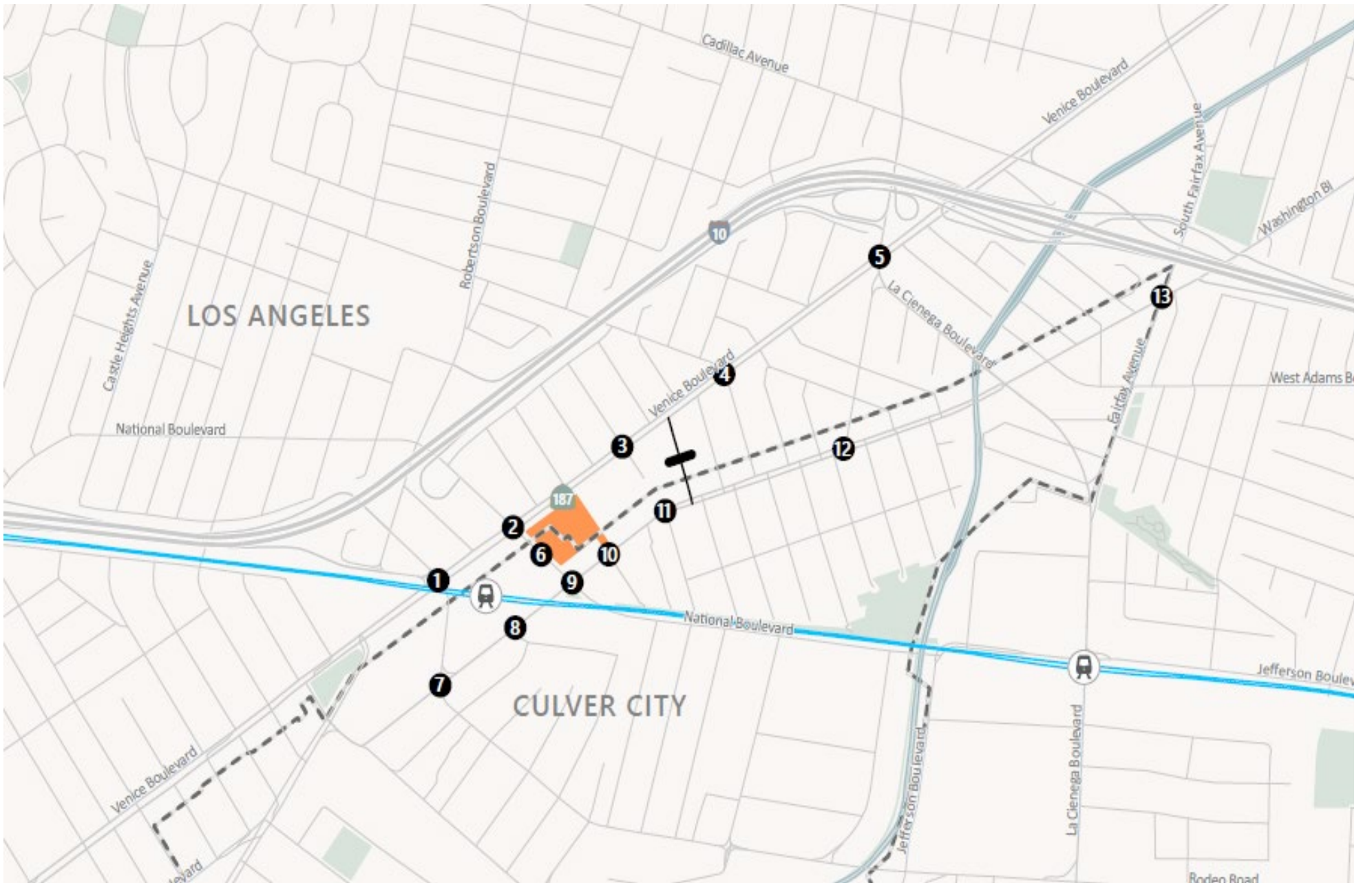


Figure 12

Peak Hour Traffic Volumes and Lane Configurations
Future Base (2026) Conditions
Crossings Campus Project



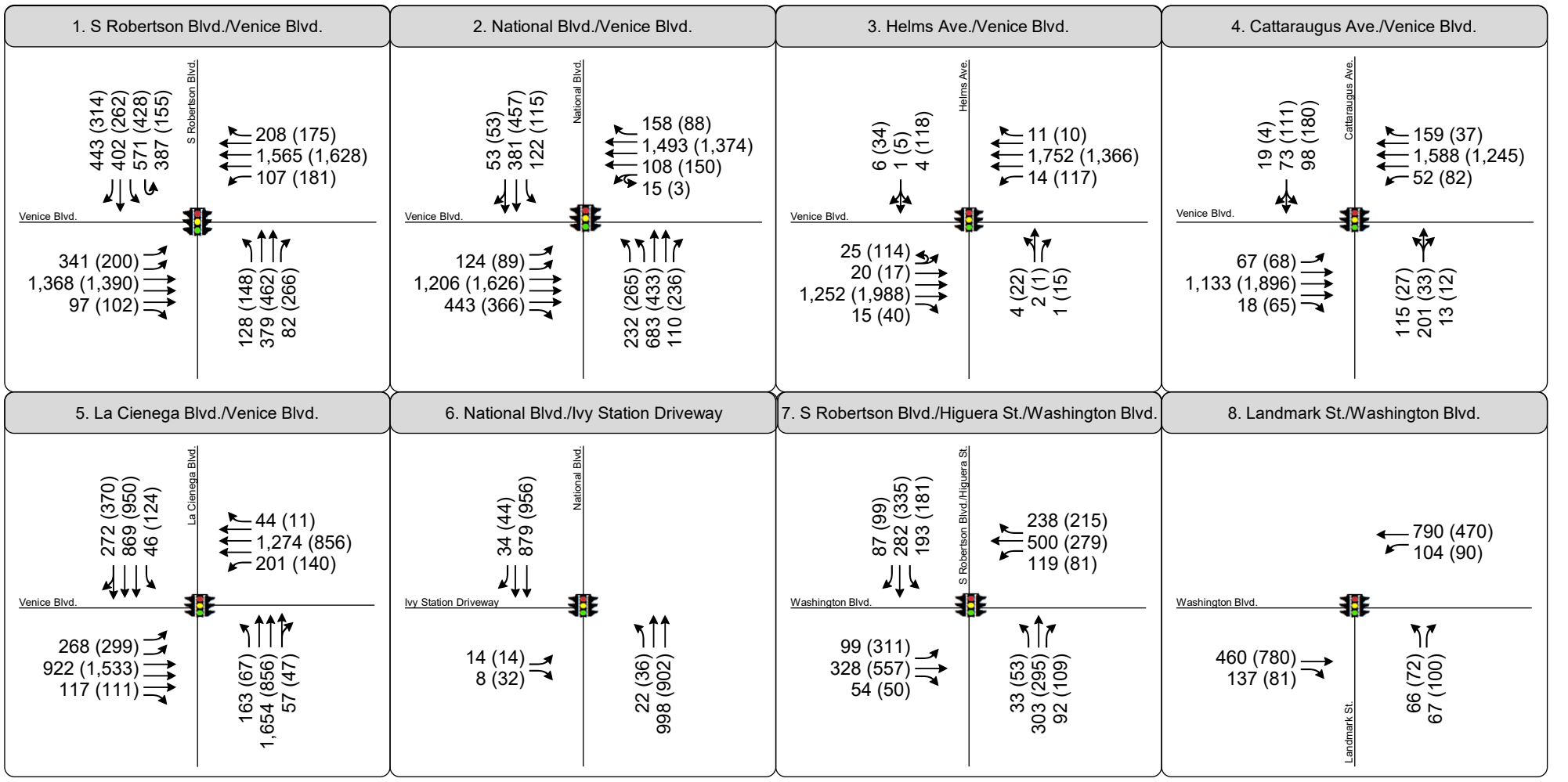


Figure 13

Peak Hour Traffic Volumes and Lane Configurations
Future + Project Conditions
Crossings Campus Project

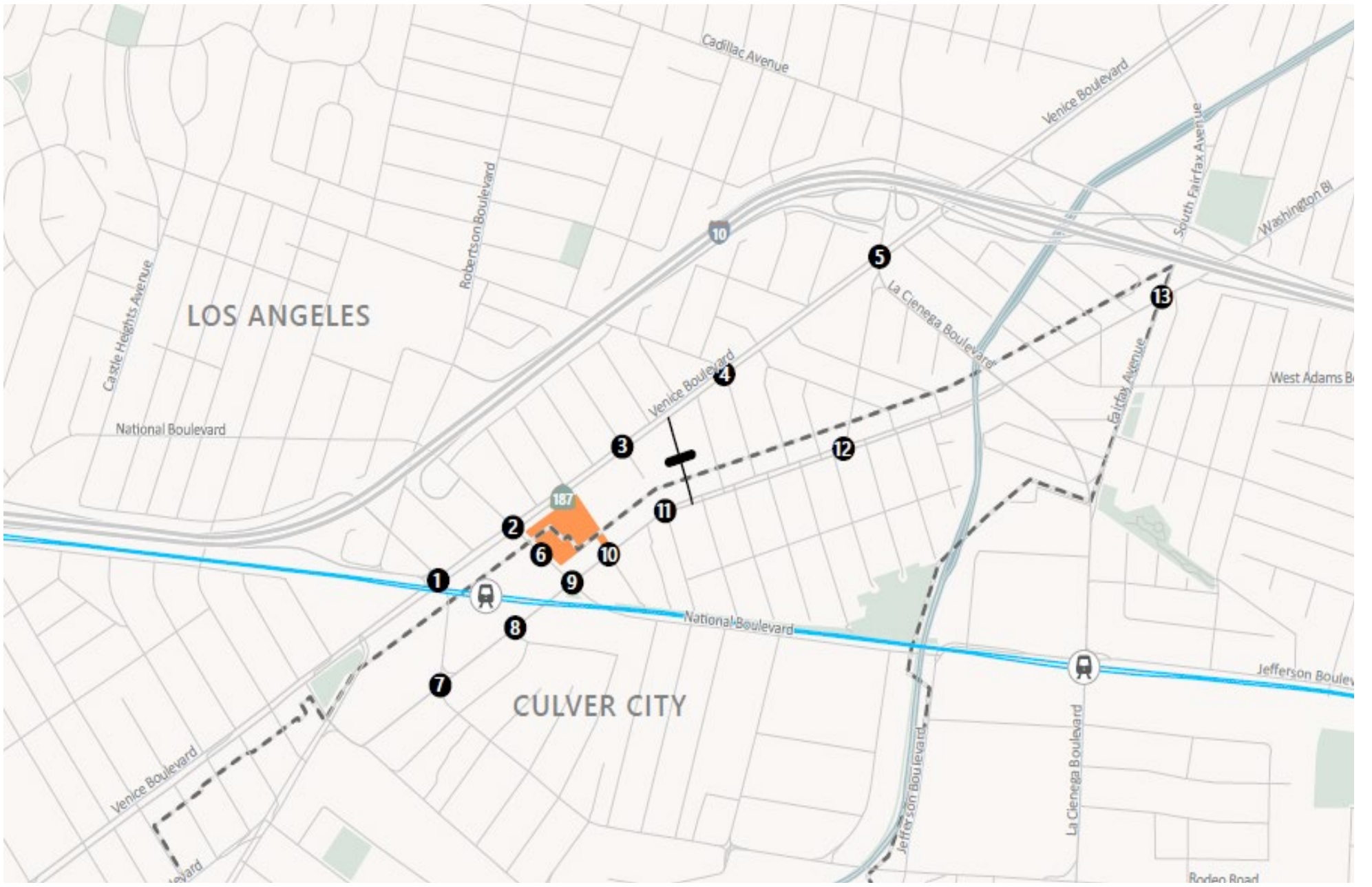


Figure 13

Peak Hour Traffic Volumes and Lane Configurations
Future + Project Conditions
Crossings Campus Project

TABLE 11
INTERSECTION LEVELS OF SERVICE AND DELAY
FUTURE BASE (2026) + PROJECT CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Future (2026)		Future (2026) + Project	
				Delay [a]	LOS	Delay [a]	LOS
1	S Robertson Blvd & Venice Blvd & Exposition Blvd	Signal	AM	218	F	239	F
			PM	126	F	128	F
2	National Blvd & Venice Blvd	Signal	AM	31	C	50	D
			PM	41	D	79	E
3	Helms Ave & Venice Blvd	Signal	AM	5	A	5	A
			PM	20	B	28	C
4	Cattaraugus Ave & Venice Blvd	Signal	AM	13	B	13	B
			PM	16	B	17	B
5	La Cienega Blvd & Venice Blvd	Signal	AM	52	D	52	D
			PM	71	E	77	E
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	6	A	5	A
			PM	6	A	8	A
7	Higuera St/Robertson Blvd & Washington Blvd	Signal	AM	35	C	41	D
			PM	44	D	46	D
8	Landmark St & Washington Blvd	Signal	AM	10	B	10	B
			PM	10	A	10	B
9	National Blvd & Washington Blvd	Signal	AM	45	D	47	D
			PM	41	D	55	D
10	Wesley St/Driveway & Washington Blvd	Signal	AM	22	C	39	D
			PM	11	B	14	B
11	Helms Ave & Washington Blvd	Signal	AM	7	A	7	A
			PM	4	A	4	A
12	McManus Ave/La Cienega Ave & Washington Blvd	Signal	AM	30	C	45	D
			PM	110	F	131	F
13	Fairfax Ave & Washington Blvd	Signal	AM	237	F	235	F
			PM	152	F	152	F

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

Horizon Year (2045) Volumes and Level of Service

In order to evaluate the potential effects of the proposed Project on the local street system under Future Buildout conditions, it was necessary to develop estimates of Horizon Year (2045) traffic conditions both with and without the Project. Horizon Year traffic volumes without the Project are first estimated, representing the Horizon Year conditions. The traffic generated by the proposed Project is then estimated and separately assigned to the surrounding street system. The sum of the Horizon Year and project-generated traffic represents Horizon Year plus Project traffic conditions.

The Horizon Year traffic projections reflect changes in traffic from one primary source: background or ambient growth in the Future Year traffic volumes to reflect the effects of overall regional growth found in the Culver City TDFM.

Long Term Areawide Traffic Growth

According to future projected population and job growth outputs from the TDFM, traffic volumes in the vicinity of the study area are projected to increase at a rate of about 0.46% per year on average through the year 2045. With the assumed TDFM buildout year of 2045, the Existing Year (2022) traffic volumes were adjusted upward by a factor of 0.46% per year for 23 years to reflect citywide and regional growth up to Year 2045. This percentage is considered a reasonable long-term growth rate.

Horizon Year (2045) Volumes and Level of Service

Figure 14 shows the Horizon Year (2045) turning movement traffic volumes that include the estimated ambient growth.

The Horizon Year (2045) traffic volumes, presented in **Figure 14**, were analyzed to determine the estimated intersection LOS and delay at each intersection. Because traffic signals in the City of Culver City and City of Los Angeles are monitored and adjusted according to current traffic conditions, it was assumed that traffic signal timing splits at study intersections would be adjusted in any horizon year operations analysis. **Table 12** summarizes the Horizon Year (2045) LOS and delay. LOS E or F are projected at five of the 13 study intersections during at least one of the analyzed peak hours, including:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
2. National Blvd & Venice Blvd (PM Peak Hour)
5. La Cienega Boulevard & Venice Boulevard (AM/PM Peak Hours)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (PM Peak Hour)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

Horizon Year Plus Project Volumes and Level of Service

The estimated Project traffic was added to the Horizon Year (2045) traffic volumes to estimate Horizon Year Plus Project traffic volumes. **Figure 15** shows the Horizon Year Plus Project turning movement traffic volumes.

Horizon Year Plus Project traffic volumes, presented in **Figure 15**, were analyzed to determine the intersection LOS and delay for each intersection. **Table 12** summarizes the Horizon Year plus Project LOS. LOS E or F are projected at eight of the 13 study intersections during at least one of the analyzed peak hours, including:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
2. National Blvd & Venice Blvd (PM Peak Hour)
5. La Cienega Boulevard & Venice Boulevard (AM/PM Peak Hours)
7. Higuera Street/Robertson Boulevard & Washington Boulevard (PM Peak Hour)
9. National Boulevard & Washington Boulevard (AM/PM Peak Hours)
10. Wesley Street/Driveway & Washington Boulevard (AM Peak Hour)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (AM/PM Peak Hours)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

Detailed LOS calculation worksheets are presented in **Appendix E**.

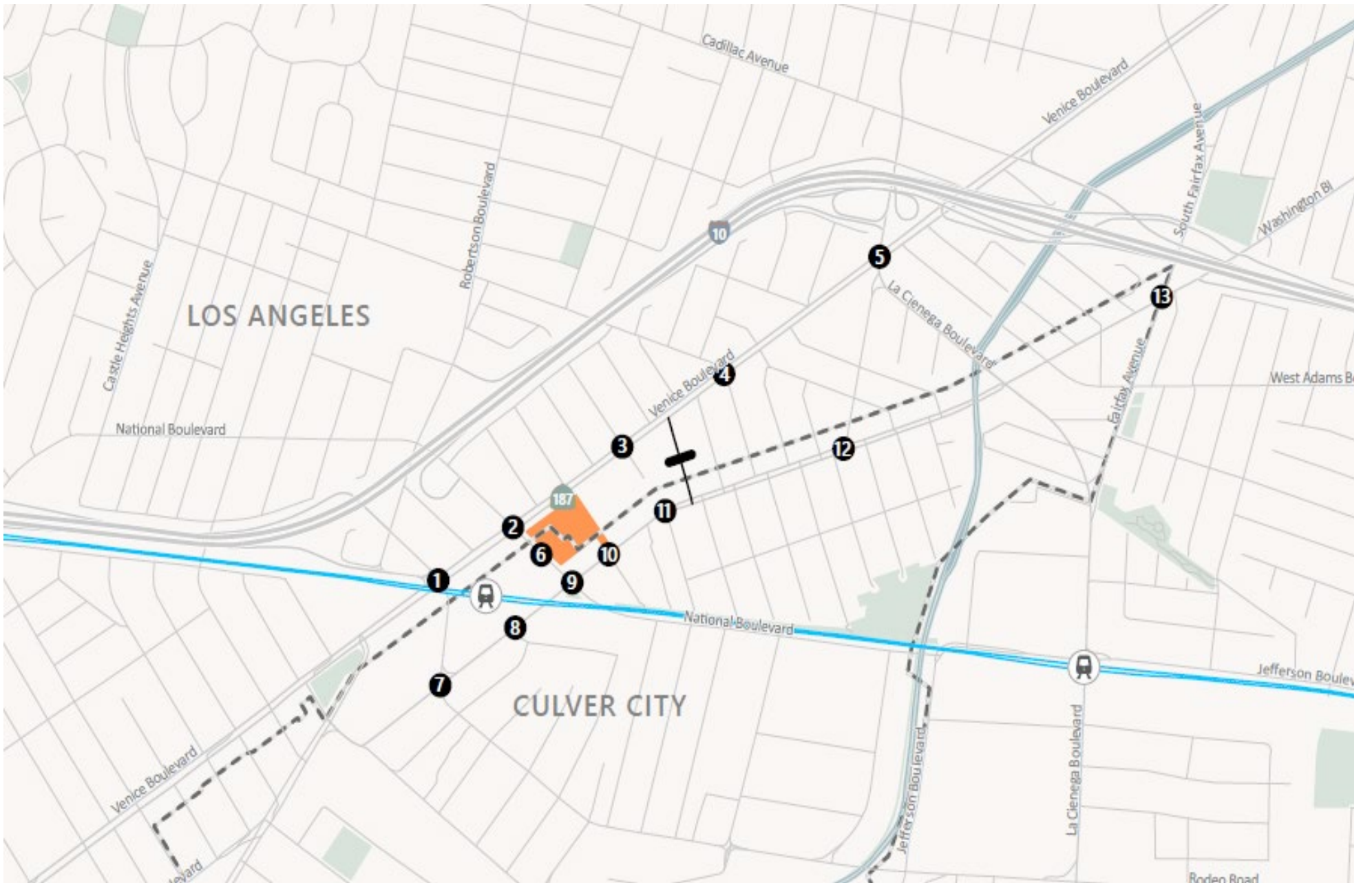
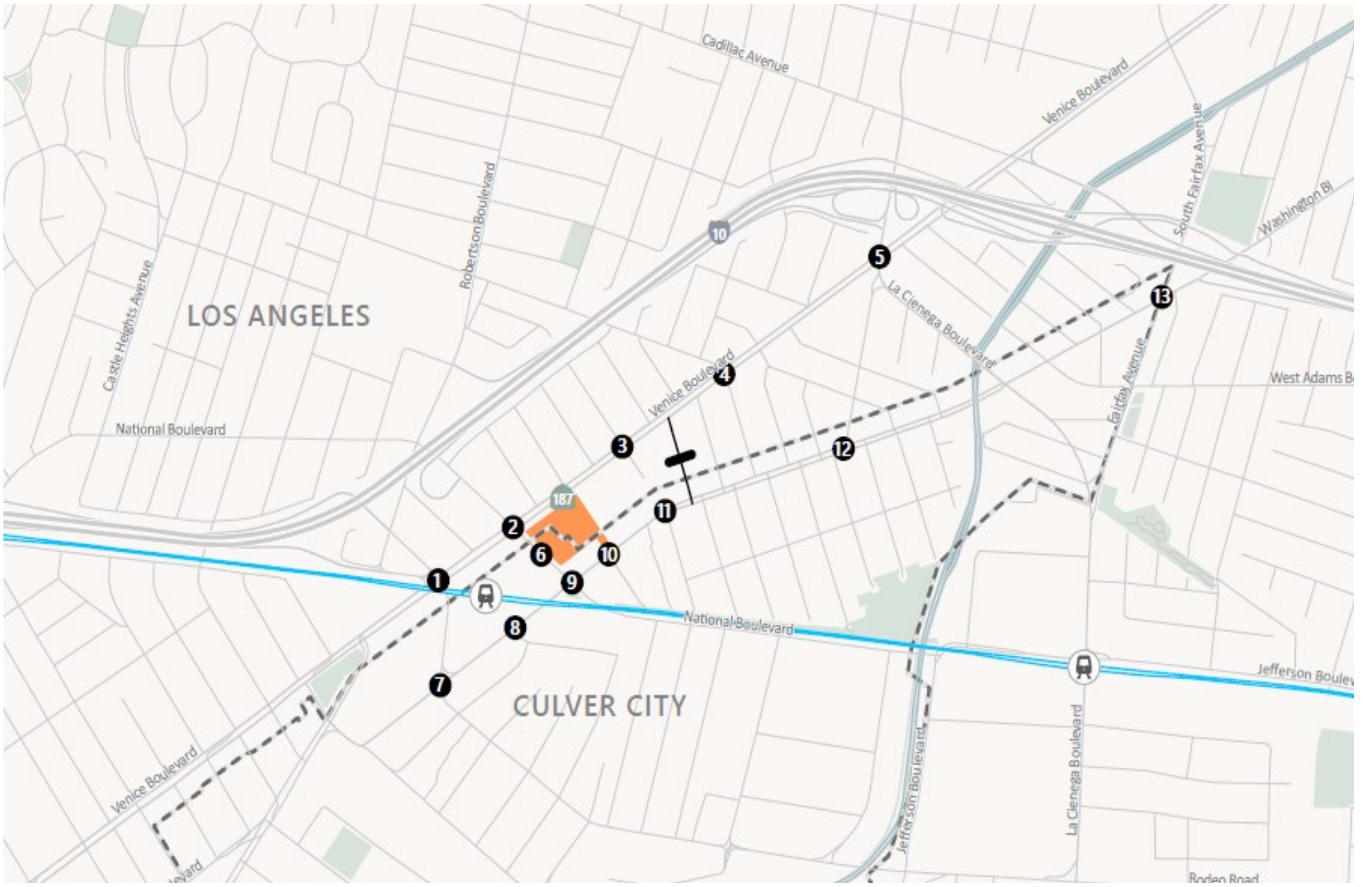


Figure 14

Peak Hour Traffic Volumes and Lane Configurations
Horizon Year (2045) Conditions
Crossings Campus Project



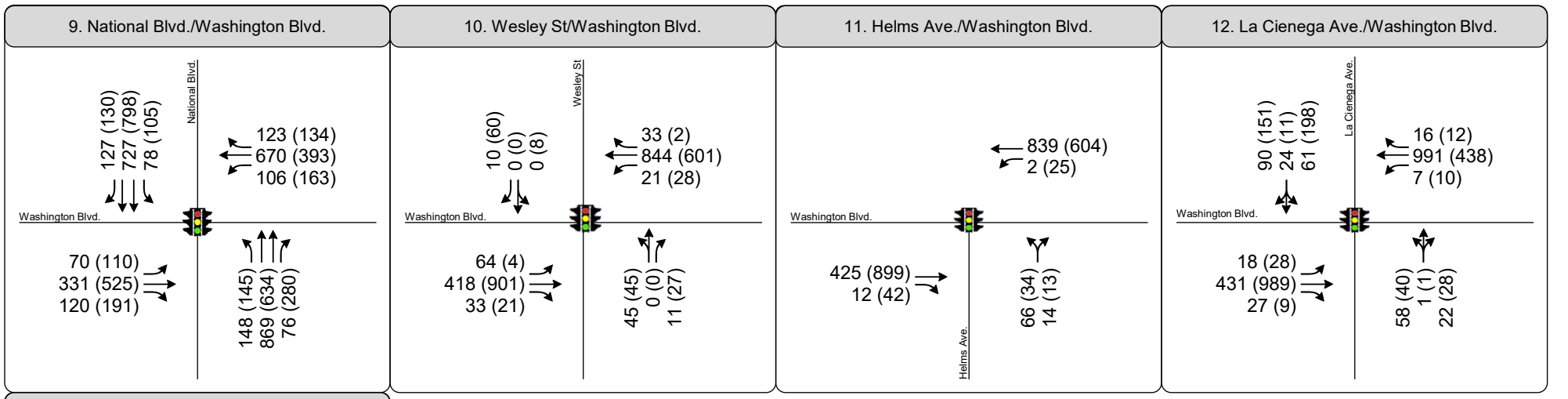


Figure 14

Peak Hour Traffic Volumes and Lane Configurations
Horizon Year (2045) Conditions
Crossings Campus Project

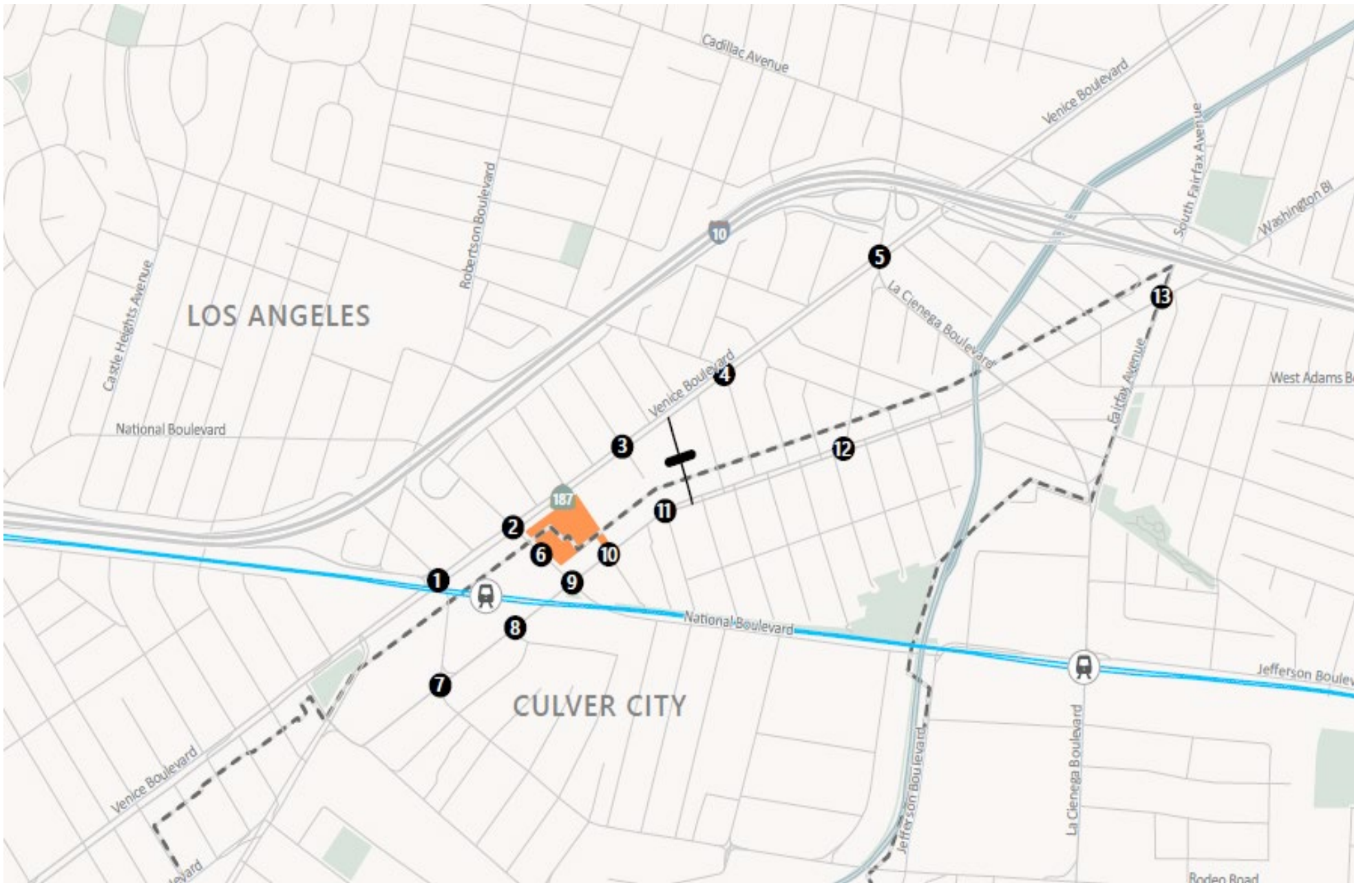
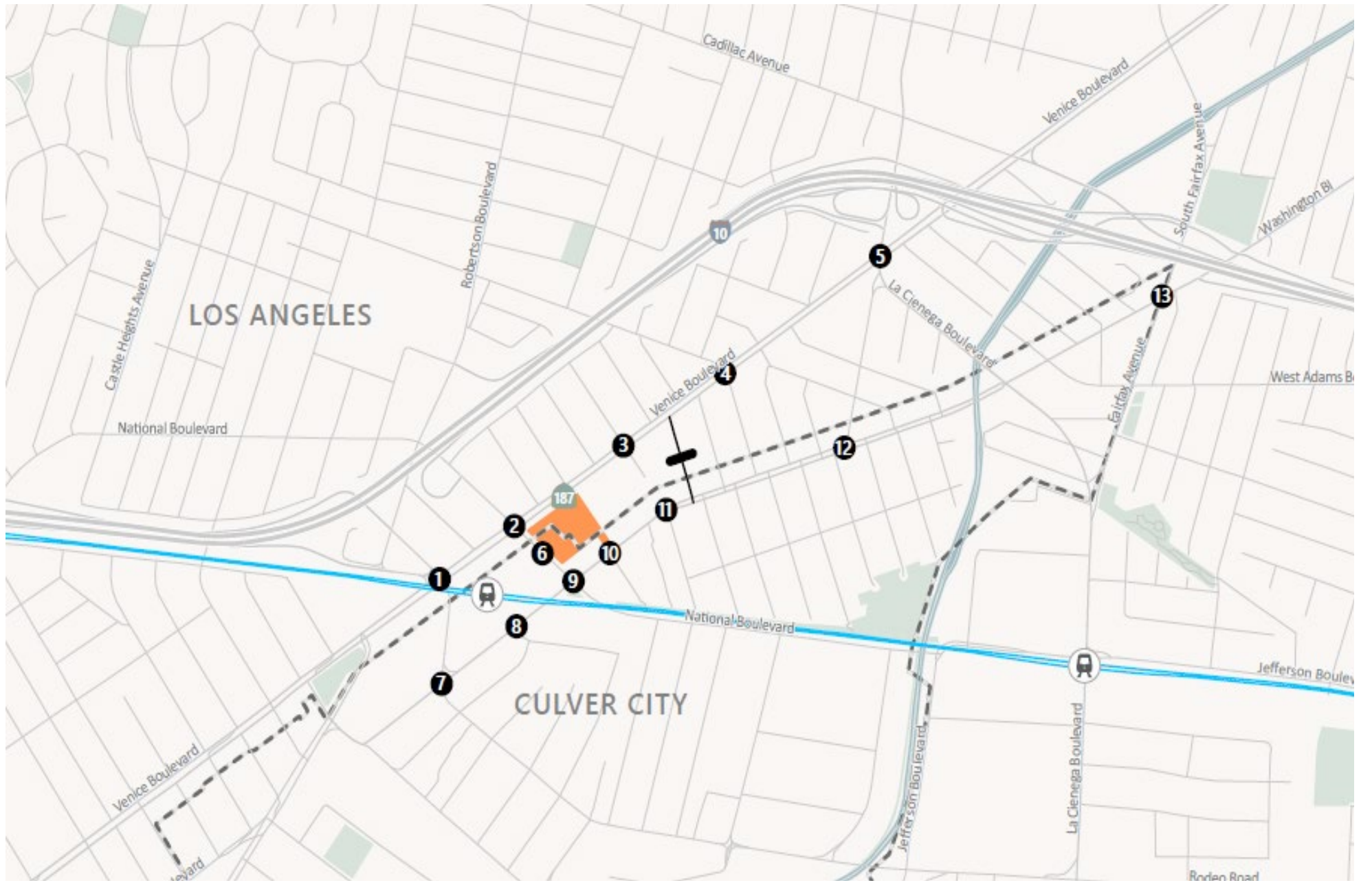


Figure 15

Peak Hour Traffic Volumes and Lane Configurations
Horizon Year + Project Conditions
Crossings Campus Project



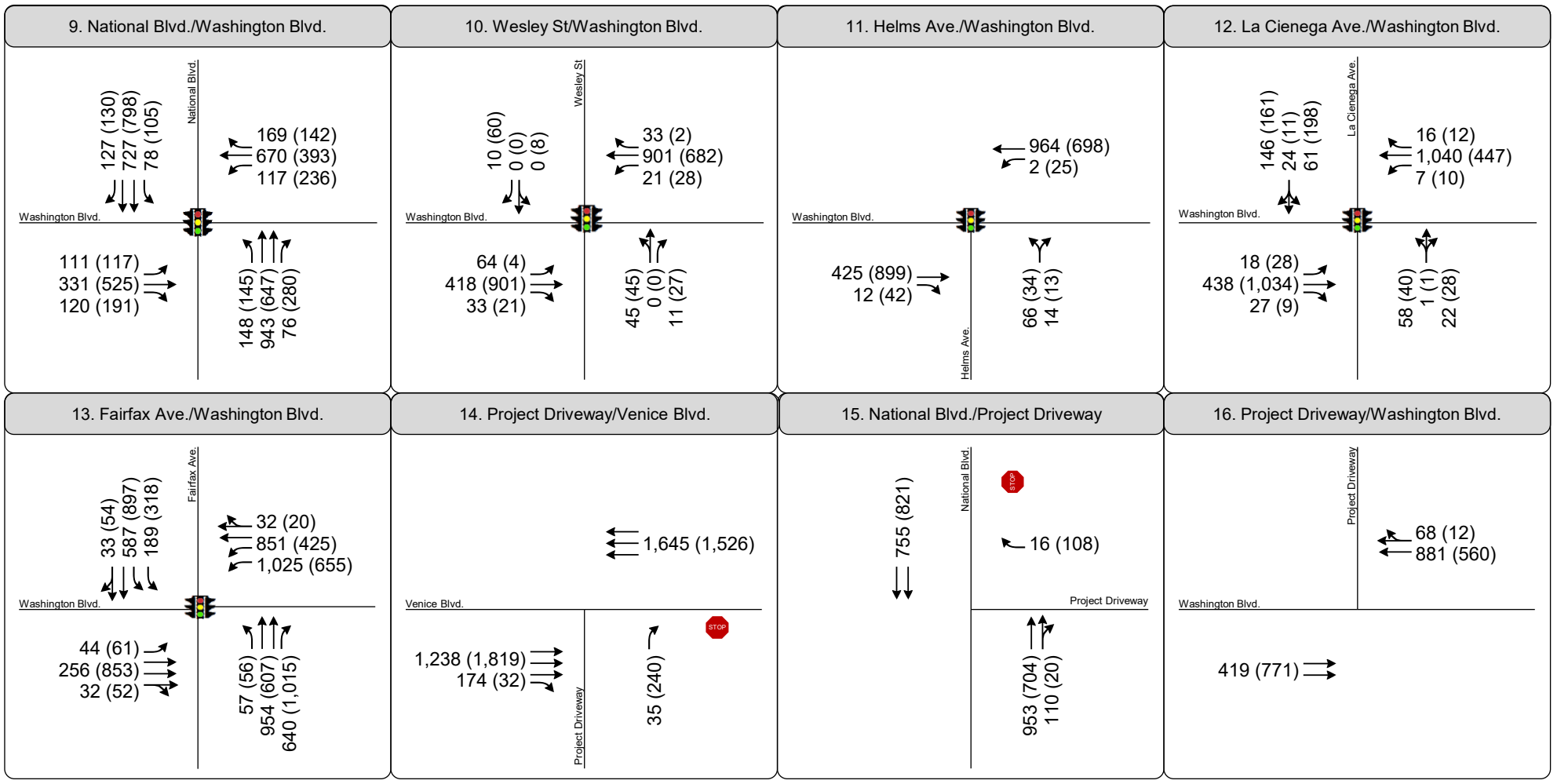


Figure 15

Peak Hour Traffic Volumes and Lane Configurations
Horizon Year + Project Conditions
Crossings Campus Project

TABLE 12
INTERSECTION LEVELS OF SERVICE AND DELAY
HORIZON YEAR (2045) + PROJECT CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Horizon Year (2045)		Horizon (2045) + Project	
				Delay [a]	LOS	Delay [a]	LOS
1	S Robertson Blvd & Venice Blvd & Exposition Blvd	Signal	AM	251	F	272	F
			PM	142	F	146	F
2	National Blvd & Venice Blvd	Signal	AM	33	C	52	D
			PM	63	E	95	F
3	Helms Ave & Venice Blvd	Signal	AM	5	A	5	A
			PM	30	C	38	D
4	Cattaraugus Ave & Venice Blvd	Signal	AM	14	B	14	B
			PM	18	B	19	B
5	La Cienega Blvd & Venice Blvd	Signal	AM	61	E	63	E
			PM	83	F	90	F
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	6	A	6	A
			PM	7	A	9	A
7	Higuera St/Robertson Blvd & Washington Blvd	Signal	AM	46	D	53	D
			PM	54	D	57	E
8	Landmark St & Washington Blvd	Signal	AM	11	B	11	B
			PM	10	B	11	B
9	National Blvd & Washington Blvd	Signal	AM	53	D	58	E
			PM	47	D	62	E
10	Wesley St/Driveway & Washington Blvd	Signal	AM	38	D	57	E
			PM	13	B	20	C
11	Helms Ave & Washington Blvd	Signal	AM	8	A	8	A
			PM	4	A	5	A
12	McManus Ave/La Cienega Ave & Washington Blvd	Signal	AM	40	D	83	F
			PM	155	F	177	F
13	Fairfax Ave & Washington Blvd	Signal	AM	254	F	252	F
			PM	169	F	169	F

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

Corrective Actions

Due to LOS E and F conditions under future year scenarios with the addition of the proposed Project and observed conditions at study intersections along Venice and Washington Boulevards, corrective actions were explored in order to reduce intersection and vehicular delay. Under the various "Plus Project" scenarios, the addition of Project traffic is projected to increase overall intersection delay at intersections already operating at LOS E or F, or causing or worsening LOS E or F conditions. LOS E and F conditions and intersection delay would not be considered significant impacts under CEQA. In general, intersection delay is high throughout the area not only due to high traffic demand during peak hours, but also because the area is a dense urban center with high pedestrian volumes and relatively wide streets with long crossing times. LOS measurements under the HCM methodology are reported only for vehicles and do not reflect the full scope of the mobility network around the Project site which provide a high degree of transit, bicycling, and walking opportunities which must also be accommodated at intersections.

The feasibility adding additional travel lanes on Venice and Washington Boulevards was investigated. This would require restriping the street and removing the bicycle lanes on Venice Boulevard and removing the dedicated bus and bicycle lanes on Washington Boulevard. However, repurposing bicycle and transit infrastructure into vehicle travel lanes would conflict with key policy initiatives in the City of LA's *Mobility Plan 2035* and the City of Culver City's *Short Range Mobility Plan*. Therefore, this corrective action was not deemed feasible. Due to the constrained ROW conditions, bicycle and transit infrastructure, and confluence of major roadways near the Project Site, other corrective actions, such as the widening of roadways to provide additional vehicular capacity, were not found to be feasible.

Although feasible corrective actions were not able to be found, the Project would provide a variety of voluntary TDM measures which would aim to reduce Project traffic and trip-making. Measures such as a commute marketing program, pedestrian-oriented Project Site, bicycle parking and amenities, and subsidized transit passes would offer alternatives to making trips in private vehicles. Some use of transit, bicycling and walking is assumed in the trip generation for the project, and the full extent of the Project TDM program would further reduce the trip generation and therefore reducing the additional delay caused by Project trips, although not necessarily eliminating any increase in delay related to the Project.

Driveway Level of Service and Queuing Analysis

Three Project driveways are proposed serving the Project Site:

- One commercial driveway and garage entrance from National Boulevard with right-only turns in/out from National Boulevard
- One commercial driveway and garage entrance from Venice Boulevard onto the eastern edge of the Project site, with right-only turns in/out from Venice Boulevard
- One driveway from Washington Boulevard, right-turn in only, leading to the Venice Boulevard garage entrance and driveway exit

Only the driveways on Venice Boulevard and National Boulevard were analyzed as the Washington Boulevard driveway operates as right-in only.

Table 13 shows estimated LOS for the two driveways. The driveway on Venice Boulevard is projected to operate at LOS C during the AM peak hour and LOS F during the PM peak hour under all project scenarios. The driveway on National Boulevard is projected to operate at LOS B during both peak hours under all project scenarios. The LOS F at the Venice Boulevard driveway would be experienced exclusively by the project traffic existing the site and would not affect delay on Venice Boulevard.

The TSCG criteria for queueing focuses on the project effects on left-turn queuing based on the location of project driveways. Since the Project does not permit left turns in and out of the project driveways, no queues were reported.

Appendix E contains the complete LOS sheets for the Project driveways.

TABLE 13
DRIVEWAY LEVELS OF SERVICE, DELAY, AND QUEUES
CROSSINGS CAMPUS PROJECT

DRIVEWAY	PEAK HOUR	EXISTING + PROJECT			FUTURE + PROJECT			HORIZON YEAR + PROJECT		
		DELAY	LOS	QUEUE (feet) [a]	DELAY	LOS	QUEUE (feet) [a]	DELAY	LOS	QUEUE (feet) [a]
Venice Driveway & Venice Boulevard	AM	15	C	N/A	16	C	N/A	17	C	N/A
	PM	101	F	N/A	140	F	N/A	186	F	N/A
National Boulevard & National Driveway	AM	12	B	N/A	13	B	N/A	13	B	N/A
	PM	11	B	N/A	12	B	N/A	12	B	N/A

[a] Intersection movement 95th percentile queues rounded to the nearest 25 feet, approximately the length of one vehicle.

Neighborhood Street Segment Analysis

Twenty-four-hour street segment counts were conducted in March 2022 at Hutchison Avenue between Venice Boulevard and Washington Boulevard and May 2022 at Ivy Street between Venice Boulevard and Regent Street, and Regent Street between Ivy Street and Vera Avenue. **Table 14, Table 15, and Table 16** analyze the existing, future year, and horizon year conditions with and without the Project.

The analysis used the TSCG's and LADOT TAG's significant project conditions thresholds for residential streets, which would not be considered significant impacts under CEQA:

Projected Average Daily Traffic (ADT) with Project	**Project-Related Increase in ADT**
999 or Less	120 trips or more
1,000 – 1,999	12% or more of final ADT
2,000 – 2,999	10% or more of final ADT
3,000 or more	8% or more of final ADT

Based on Tables 14, 15, and 16, this analysis shows that the Project would not create significant project conditions on any of the studied neighborhood streets in any Project scenario. Significant project conditions under the TSCG and LA TAG would not be considered significant impacts under CEQA. After the buildout of the Project Site, the City of Culver City and LADOT would reserve the right to monitor traffic volumes on studied neighborhood streets and require traffic calming measures to be built to minimize Project cut-through traffic.

TABLE 14
NEIGHBORHOOD STREET SEGMENT ANALYSIS
EXISTING CONDITIONS
CROSSINGS CAMPUS PROJECT

Location	Jurisdiction [a]	Weekday Bidirectional Daily Volume			Segment Analysis		
		Existing ADT	Project Only	Existing plus Project	% of Final ADT	Significance Threshold	Significant Project Condition?
Hutchison Ave b/w Venice Blvd and Washington Blvd	Los Angeles/Culver City	1,003	136	1,139	11.9%	+12.0%	No
Ivy St b/w Venice Blvd and Regent St	Los Angeles	219	*	219	-	120 Trips	No
Regent St b/w Ivy St and Vera Ave	Los Angeles	1,374	*	1,374	-	+12.0%	No

Note: [a] Culver City and LADOT use the same evaluation criteria for street segment analyses

* A negligible number of Project trips

TABLE 15
NEIGHBORHOOD STREET SEGMENT ANALYSIS
FUTURE (2026) CONDITIONS
CROSSINGS CAMPUS PROJECT

Location	Jurisdiction [a]	Weekday Bidirectional Daily Volume			Segment Analysis		
		Future ADT	Project Only	Future + Project	% of Final ADT	Significance Threshold	Significant Project Condition?
Hutchison Ave b/w Venice Blvd and Washington Blvd	Los Angeles/Culver City	1,035	136	1,171	11.6%	+12.0%	No
Ivy St b/w Venice Blvd and Regent St	Los Angeles	226	*	226	-	120 Trips	No
Regent St b/w Ivy St and Vera Ave	Los Angeles	1,418	*	1,418	-	+12.0%	No

Note: [a] Culver City and LADOT use the same evaluation criteria for street segment analyses

* A negligible number of Project trips

TABLE 16
NEIGHBORHOOD STREET SEGMENT ANALYSIS
HORIZON YEAR (2045) CONDITIONS
CROSSINGS CAMPUS PROJECT

Location	Jurisdiction [a]	Weekday Bidirectional Daily Volume			Segment Analysis		
		Horizon Year ADT	Project Only	Horizon + Project	% of Final ADT	Significance Threshold	Significant Project Condition?
Hutchison Ave b/w Venice Blvd and Washington Blvd	Los Angeles/Culver City	1,115	136	1,251	10.9%	+12.0%	No
Ivy St b/w Venice Blvd and Regent St	Los Angeles	243	*	243	-	120 Trips	No
Regent St b/w Ivy St and Vera Ave	Los Angeles	1,527	*	1,527	-	+12.0%	No

Note: [a] Culver City and LADOT use the same evaluation criteria for street segment analyses

* A negligible number of Project trips

Transit Operations Analysis

Per the Culver City TSCG, the purpose of the transit operations analysis is to determine what effects the proposed Project may have on public transit demand, capacity, delay, and conditions. The Project is expected to generate more than 300 new vehicle trips in the PM peak hour. Therefore, per the TSCG, a transit delay analysis is required.

Transit Demand and Capacity

Vehicle trip generation rates used in this study assume that 25% of Project trips would utilize public transit. It is estimated that the Project would result in 150 new transit trips in the AM peak hour, and 155 new transit trips in the PM peak hour. **Figure 3**, introduced in Chapter 2, shows data for transit services near the Project Site. This transit demand and capacity analysis considers only those services that have bus stops or rail stations within a quarter mile (a reasonable walk for most people to access transit service) of the Site. These include Big Blue Bus Line 17; Culver City Bus Lines 1, 1C, and 7; LADOT Commuter Express Line 437A; Metro Bus Lines 33 and 617; and Metro E Line. Based on transit headways before the COVID-19 pandemic, up to 19 buses per hour would service bus stops within a quarter mile of the Project Site during both the AM and PM peak periods. Assuming a capacity of 83 total (seated and standing) passengers per 40' long bus and a capacity of 49 passengers per 40' Commuter Express coach bus, the bus transit capacity that would serve the Project Site would be 15,859 passengers per hour during peak periods. Assuming a 405-passenger capacity on a three-car train and eight trains per hour during peak hours, the Metro Rail E Line capacity servicing the nearby Culver City station would be 3,240 passengers during both the AM and PM peak periods.

Using the trip direction proportions from the trip distribution discussed earlier in **Figure 7**, estimated Project transit trips can be allocated to those transit services with stops or stations within a quarter mile of the Project. **Table 17** displays headways, capacity, ridership data, and estimated Project transit trips that would utilize each of the services. The Project transit trips are a conservative estimate that assumes all riders traveling on a particular transit line direction would board the same vehicle at the same time. Even with those assumptions, most transit lines would add fewer than 20 riders in each peak hour and no transit line would see boardings representing more than 30% of peak hour transit vehicle capacity.

TABLE 17
TRANSIT CAPACITY AND DEMAND
CROSSINGS CAMPUS PROJECT

Line	Weekday Frequency (min.)			Peak Hour Transit Vehicles per Hour	Seated Vehicle Capacity	Peak Hour Seated Capacity	Pre-Pandemic Weekday Line Ridership	AM Project Trips	PM Project Trips	AM % of Capacity	PM % of Capacity
	Peak	Mid-Day	Evening								
Big Blue Bus											
17	20	20	20-60	3	83	249	1,600	10	10	4%	4%
Culver City Bus											
1	15	15	30	2	83	166	3,083	14	15	8%	9%
1C	10	15	15	4	83	332		14	15	4%	5%
7	40	40-45	-	1	83	83	390	14	15	17%	19%
LADOT Commuter Express											
437	15-30	-	-	4	49	196	83	11	10	5%	5%
Metro Bus											
33	7.5	7.5	15-30	4	83	332	10,085	14	15	4%	5%
617	45	45	60	1	83	83	618	24	25	29%	30%
Metro Rail											
E Line	8	12	8	8	405	3240	61,590	20	21	1%	1%

Notes:
Rail Capacity: 135 passengers/car, can be up to 3 cars long during peak hour.
LADOT bus capacity: https://www.masstransitmag.com/home/press-release/10277295/motor-coach-industries-mci-ladot-orders-84-mci-commuter-coaches-powered-by-cng

Transit Delay

As required by the TSCG, an analysis to estimate the transit delay caused by the Project was conducted. This evaluation was based on three components: traffic congestion delay, transit reentry delay, and passenger boarding delay. Existing transit routes, stops, frequency, and pre-pandemic ridership can be found in **Figure 3**.

Traffic Congestion Delay

Traffic congestion delay is the additional time experienced by a transit vehicle as it travels between stops across one or more intersections in the corridor due to congestion caused by other vehicular traffic traveling parallel or perpendicular to the transit flow. LOS can be used to qualitatively describe the operating conditions of study intersections near the Project and approximate any Project-related changes in traffic congestion delay. As previously discussed, the traffic congestion along Washington Boulevard, National Boulevard, and Venice Boulevard will increase. There is a bus-only lane on Washington Boulevard where it fronts the Project site. With this dedicated lane, Project trips along Washington Boulevard are not anticipated to have an impact on transit vehicle delay. Since there are no transit-only lanes on National Boulevard or Venice Boulevard, delay for transit vehicles would increase. The segment of National Boulevard most affected by the project, between I-10 and Washington Boulevard, would increase delay less than 60 seconds during the worst peak hour. The segment of Venice most affected by the project, between Robertson Boulevard and I-10, would experience an increase of up to 240 seconds of delay in the PM peak hour and peak direction (eastbound), primarily affecting Metro Line 33. The City of Los Angeles Mobility Plan 2035 designates Venice Boulevard as part of its "Transit Enhanced Network," which would add transit priority on the corridor to minimize transit delay in the future.

Transit Reentry Delay

Transit reentry delay is the wait time for a sufficient gap in traffic flow to allow a bus to pull back into the travel lane. Transit reentry delay can be approximated using the approach delay for the direction that a transit vehicle would be traveling near study intersections. As was the case in the traffic congestion delay evaluation, there is expected to be an increase in Project vehicle trips along National Boulevard and Venice Boulevard that will affect transit vehicles. It is expected that transit reentry delay would marginally increase as a result of increasing traffic congestion, both without and with the Project. However, bus stops near the Project site are all located near to signalized intersections where re-entry gaps are available between signal phases (as opposed to stops located on a long unsignalized corridor where the flow of traffic might be uninterrupted for long periods). Furthermore, the MOVE Culver City project has incorporated bus boarding platforms at its stops along Washington Boulevard which is a best practice for eliminating transit re-entry delay.

Passenger Boarding Delay

Passenger boarding delay is the sum at each transit stop of passenger boarding delay (calculated by using a second per passenger boarding/alighting and based on projected transit boarding). It is estimated that the Project would result in 150 new transit trips in the AM peak hour and 155 new transit trips in the PM

peak hour. Using the same methodology outlined in the transit demand and capacity analysis, it is estimated that the maximum boardings per peak hour for any given transit vehicle would not exceed 25 trips in the AM or PM peak hour. Assuming one second per passenger boarding, the project would therefore be anticipated to increase passenger boarding delay by up to 30 seconds per bus trip in the AM and PM peak hours.

The most frequent bus line, Metro Line 33, has a daytime headway of 7.5 minutes and operates on Venice Boulevard, which has no bus lane, although one may be implemented in the future. The most frequent Culver City Bus lines, 1 and 1C, operate on Washington Boulevard, taking advantage of the MOVE Culver City mobility lanes that provide full priority for buses and separate them from traffic including Project trips. Upon evaluation of these three delay components, it is not anticipated that the Project will create a delay greater than one-half headway for most existing surface lines.

However, the increase in peak-direction delay on Venice Boulevard potentially raises a substantial issue for Metro Line 33 by increasing delay through this segment by up to 4 minutes. The City of Los Angeles' Mobility Plan 2035 identifies Venice Boulevard as part of the Transit Enhanced Network and a future peak-hour or all-day bus-only lane is envisioned, which would resolve the transit delay issue. The Mobility Plan strategies are not intended to be implemented by individual development projects, and implementation of a bus lane just within the vicinity of the project would not fully resolve the transit delays expected to be incurred in the future as a result of increased development throughout the region.

Hazardous Conditions Assessment

The intent of this assessment is to determine the potential for hazardous conditions for transit operations, vehicles, and users due to the Project's vehicular trip generation and Project design elements. As discussed in Chapter 2, the Project Site is bordered by three major arterials—National Boulevard to the west, Venice Boulevard to the north, and Washington Boulevard to the south. The posted speed on National Boulevard and Venice Boulevard is 40 mph and the arterials provide four and six lanes of travel, respectively. Washington Boulevard provides two travel lanes, and the posted speed is 35 mph in the study area. Washington Boulevard also features a bus only lane in each travel direction. Metro operates its Line 33 bus route along Venice Boulevard with one stop on the north Project frontage, and its Line 617 bus route along National Boulevard with no stops immediately on the project frontage. Santa Monica Big Blue Bus Line 17 also operates on National Boulevard, where it intersects the Project and has no stops along the frontage. LADOT Commuter Express runs along Washington Boulevard, also with no stops along the Project frontage. Culver City Bus Lines 1 and 5 pass the Project Site to the southwest along Washington Boulevard but have no stops immediately along the Project's frontage, and Line 7 passes the Project to the southeast on National Boulevard again with no stops on the frontage. The sole bus stop adjacent to the Project (Metro Line 33 on National Boulevard) is located about 450 and 600 feet from the nearest Project driveways.

Because Project driveways would be designed according to applicable City standards and the total number of driveways would decrease from four to three, there would be fewer potential points of conflict between buses and vehicles. The Project would also be designed to minimize obstructions to sightlines. Project trips would ingress/egress on National Boulevard and Venice Boulevard with only right turns allowed in either direction. An estimated 172 vehicles and 110 vehicles would take a right-turn into the Project site during

the AM peak hour using the Venice and National driveways, respectively. It is expected that both driveways would be able to accommodate the additional right-turn ingress movements created by the Project. Therefore, no queues are expected to form in the right-most travel lane where a bus would be traveling. Consequently, the National Boulevard and Venice Boulevard driveways are not expected to create potentially hazardous conditions for transit. The driveway on Washington Boulevard is estimated to have 68 vehicles taking a right-turn into the Project site during the AM peak hour. The existing driveway on Washington Boulevard currently intersects a bus-only transit lane. While the driveway would continue to allow for ingress right turns only, Project vehicle trips would make right-turn movements into the Project driveway that cross over the bus-only lane. It is expected that the Project driveway would be able to accommodate the additional right-turn movements, and therefore no queues would form on the transit only lane, but the increase in these turning movements may increase the risk of conflict between buses and vehicles. The design of the bus-only lane on Washington Boulevard already accounts for this existing driveway both geometrically and with conflict markings (dashed red paint striping across the driveway area) to alert drivers and bus operators. These elements would be maintained or improved with the Project.

5. Summary and Conclusions

This study was undertaken to analyze the potential transportation impacts of the proposed Crossings Campus development. The following summarizes the results of this analysis:

- The Project would involve the demolition of 105,047 sf of warehouse, office and retail space and involves the development of two adjacent parcels, one in the City of Culver City and the other in the City of Los Angeles. The Project will construct two, four- to five-story buildings that would provide a total of 536,000 square feet (sf) of new office floor area, which is intended to be occupied by Apple, Inc. The three Project driveways would be located on Venice Boulevard, National Boulevard, and Washington Boulevard.
- Based on the TSCG, the Project is screened from having to conduct VMT impact analysis and is presumed to have a less than significant impact on VMT as it is located less than 600 feet from the Metro E Line Culver City Station, well within the ½ mile from a key TPA as identified in Threshold 2. Therefore, a less than significant impact is presumed. However, the Project proposes voluntary TDM measures which would reduce Project traffic.
- The Project features, location, and design would be consistent with both City's plans, programs, ordinances, and policies that support alternative transportation and have been adopted to protect the environment. Therefore, the Project would have a less than significant impact on both City's transportation-related plans, programs, ordinances, and policies.
- The Project is not projected to substantially increase hazards, conflicts, or preclude City action to fulfill or implement projects associated with surrounding transportation networks and will contribute to overall walkability through enhancements to the Project site and streetscape. Therefore, the Project is expected to have a less than significant impact.
- Based on guidance from the LA TAG, the addition of Project traffic under all three analysis scenarios is not projected to cause or add to a queue extending onto the freeway mainline by less than two car lengths. Therefore, the Project is expected to cause a less than significant safety impact.
- The Project would generate an estimated 403 trips (352 inbound/51 outbound) in the AM peak hour and 412 trips (64 inbound/348 trips outbound) in the PM peak hour.
- The LOS analysis for the Existing plus Project, Future Year plus Project, and Horizon Year plus Project scenarios determined that the proposed Project would result in LOS E/F conditions at several intersections selected for analysis.
- The street segment analysis for the Existing plus Project, Future Year plus Project, and Future plus Project scenarios determined that the proposed Project would not result in TSCG/LA TAG significant project conditions along street segments selected for analysis.
- The Project would generate 150 new transit trips in the AM peak hour and 155 new transit trips in the PM peak hour. The Project is estimated to add fewer than 20 riders in each peak hour and no transit line would see boardings representing more than 30% of peak hour transit vehicle capacity.

- Metro Line 33 may incur substantial additional delay on Venice Boulevard in the future based on increased traffic congestion and additional delay related to Project trips; the Los Angeles Mobility Plan 2035 identifies the Venice corridor as part of the Transit Enhanced Network which would add bus-only lanes throughout, and therefore resolve the potential increase in transit delay. All other routes in the project area primarily travel on other streets, and bus routes utilizing Washington Boulevard have the advantage of the MOVE Culver City mobility lanes which separate and prioritize buses through the study area.
- The Project would not worsen any hazardous conditions for transit operations.

References

California Air Pollution Control Officers Association, *Quantifying Greenhouse Gas Mitigation Measures*, 2010

State of California, *Government Code*

City of Culver City, *Circulation Element*, 2004

City of Culver City, *Complete Streets Policy*, 2020

City of Culver City, *Draft Bicycle & Pedestrian Action Plan*, 2020

City of Culver City, *Bicycle & Pedestrian Master Plan*, 2010

City of Culver City, *Land Use Element*, 2004

City of Culver City, *Municipal Code*

City of Culver City, *Short Range Transit Plan*, 2020

City of Culver City, *Transportation Study Criteria and Guidelines*, 2020

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

City of Los Angeles, *Mobility Plan 2035*, 2016

San Diego Association of Governments *Not so Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, 2002

Transportation Research Board, *Highway Capacity Manual, 6th Edition,* 2016

Appendix A: Memorandum of Understanding (MOU)

Memorandum of Understanding for Transportation Study

This Memorandum of Understanding (MOU) acknowledges and agrees to all the City of Culver City requirements and fees for the review of a transportation study for the following project.

Date Submitted: 02/03/2022 **MOU Version #** 2

Project Name: Crossings Campus

Project Address: 8825 National Blvd. and 8771 Washington Blvd., Culver City/8876-8888 Venice Blvd. and 8827 National Blvd., Los Angeles

Project Description: 536,000 GSF Class-A office space with 1,215 subterranean vehicular parking spaces

Land Use	Gross Floor Area (sq. ft.) *Defined per latest ITE publication*	Residential Units (#)
Office	536,000 GSF	

Project Horizon Year: 2025 **Ambient Growth Rate (% per year):** 0.8%

Directional Distribution (%): N: S: E: W:

See Figure 2: Trip Distribution

Trip Generation Rates: Show AM, PM and daily trip generation rates for each land use and attach total daily trips generation calculations. Indicate ITE Latest Edition/Other 11th edition

Land Use	ITE Code#	AM Trips		PM Trips		Daily Totals	
		In	Out	In	Out	In	Out
General Office	710	352	51	64	348		

See Table 1: Trip Generation

Study Intersections: Show all study intersections, intersections subject to capacity analysis credit for advanced traffic signal control synchronization, whether intersections are signalized or non-signalized, and use the same numbering system for all lists of intersections and figures in the study.

No.	Intersection	Signalized/Non-Signalized	Jurisdiction

See Figure 3: Study Locations

Residential Streets: Show all residential streets to be studied.

No.	Street Name	Limits	Jurisdiction
1	Hutchison Avenue	Between Venice Blvd and Washington Blvd	Culver City & LA

See Figure 3: Study Locations

Trip Credits: Indicate trip credits to be requested (subject to City approval)

	Trip Credits	Yes/No
Existing Uses	Office: 51,500 GSF, Furniture Retail: 24,550 GSF	Yes
Pass-By Trips		
Internal Trip Capture		
Transit-Oriented Development (TOD)	Adjacent to Metro E Line Culver City Station	Yes
Transportation Demand Management (TDM)		

See Table 1: Trip Generation

Related Projects: Before the start of any proposed project analysis, consultants shall:

1. Obtain a list of related projects from the Culver City Current Planning Division and other affected jurisdictions.
2. Prepare a draft list of "related projects specific to the proposed project."
3. Obtain written approval from the City of the "related projects specific to the proposed project." *See Figure 4/Table 2: Related Projects*

Maps: The following maps shall be attached to the MOU:

1. A map showing the study intersections and street segments to be analyzed, including City limit lines where applicable.
2. A map showing the project's trip distribution percentages for each land use (inbound and outbound) on the area's road network.
3. A map showing the project's trip assignments at the study intersections and project driveways, as well as road segments when applicable.
4. A site plan of the project showing property lines, alleys, project's driveways and nearby driveways and intersections on both sides of the street including dimensions.

Proposed Mitigation and Transportation Improvements: Any proposed transportation improvement(s) or mitigation measure(s) shall be listed and accompanied by plans of the existing and proposed improvements, including city limit lines and existing and proposed property lines. The City may initially accept conceptual plans to be included in the Transportation Study. Detailed design of such improvements will be part of the project's plans submittals.

Post-Occupancy Traffic Counts: By signing below, the Property Owner/ Developer/Applicant hereby agrees to pay for and submit to the City a post-occupancy traffic count analysis of the development to the satisfaction of the City. The analysis shall determine the amount of actual traffic (motor vehicle, bicycle, and pedestrian) generated by the development compared to the ITE trip generation rates. The analysis shall include a traffic count of all onsite driveways taken upon reaching eighty-five percent (85%) occupancy of the total building gross floor area or within one (1) year of the issuance of the first Temporary Certificate of Occupancy (TCO), as determined by the City. The data shall be used to confirm the findings in the approved study and not result in any additional traffic mitigation measures and/or conditions of approval on the subject project.

Fees: Payment of a fee to the City's PWD for the City's processing of the MOU shall be required before the City approves the MOU. Payment for review of the Transportation Study shall be paid before the City's PWD completes its review of the Transportation Study. Said fees shall be per the most recent Fee Schedule as approved by the City Council.

See attached memo for additional transportation analyses

Applicant Information:

	Property Owner/Applicant	Developer/Applicant	Traffic Consultant
Name	Melissa Schild	Gabe Hungerford	Jeremiah LaRose
Title	Authorized Person	Vice President	Associate
Company	Culver Crossings Properties LLC	Trammell Crow Company	Fehr & Peers
Street Address	c/o TCC 2221 Rosecrans Ave Ste. 200	2221 Rosecrans Ave Ste. 200	600 Wilshire Blvd Ste. 1050
City, State, Zip	El Segundo, CA 90245	El Segundo, CA 90245	Los Angeles, CA, 90017
Office	310-363-4700	310-363-4715	213-261-3050
Cell			
Fax			
Email		ghungerford@trammellcrow.com	j.larose@fehrandpeers.com

Public Agency Information: If any of the intersection(s) to be studied as part of this study are located within the City of Los Angeles, the unincorporated areas of Los Angeles County and/or impact any other public agency (i.e., Caltrans), then this MOU shall also be approved by the reviewing staff representative from each agency:

	City of Los Angeles	County of Los Angeles	Other Public Agency
Name	Wes Pringle		
Title	Transportation Engineer		
Company	LADOT		
Street Address	100 S Main St, 9th Floor		
City, State, Zip	Los Angeles, CA 90012		
Office	213-972-8482		
Cell			
Fax			
Email	wes.pringle@lacity.org		

Signatures/Expiration: This MOU shall become valid as of the date of the City's signature and expire one year thereafter. If the administrative draft of the study has not been filed with the City by the expiration date, the MOU shall expire and a new MOU filing, fee, review, and approval process shall be required.

Approved By:	Date:
Property Owner/Applicant	02/07/2022
Developer/Applicant	02/07/2022
Traffic Consultant	02/03/2022
City of Culver City	03/03/2022

FEHR PEERS

Memorandum

Date: February 3, 2022

To: City of Culver City

From: Jeremiah LaRose, Vivian Lee, and Griffin Kantz, *Fehr & Peers*

Subject: Methodologies and Assumptions for Crossings Campus Transportation Impact Analysis

LA21-3287

This memorandum documents the methodologies and assumptions which will be used in the Transportation Study to be prepared as part of the environmental impact report (EIR) for Crossings Campus, at 8825 National Blvd. and 8771 Washington Blvd. (Culver City parcel) and 8876, 8884, 8886 and 8888 Venice Blvd. and 8827 and 8829 National Blvd. (Los Angeles parcel). This memorandum serves as a supplement to the City of Culver City Memorandum of Understanding (MOU) for Transportation Study form to approve the approach for the transportation impact analysis. The approach detailed here addresses analyses laid out in the City of Culver City Transportation Study Criteria and Guidelines as well as the Los Angeles Department of Transportation (LADOT) Transportation Assessment Guidelines (TAG). The City of Culver City is the lead agency for this EIR.

Project Description

The Project involves the development of two adjacent parcels, one in the City of Culver City (APN 4312-015-006) and the other in the City of Los Angeles (APN 4312-015-005). The Project proposes to construct two four- to five-story buildings that would provide a total of 536,000 sf of new office floor area and 1,215 vehicular parking spaces within two separate three-level subterranean garages under each proposed building. The Project would provide 162 bicycle parking spaces, including spaces for employees and visitors, short-term spaces, and long-term spaces in compliance with respective City codes. The Project would also include pedestrian-facing landscaping at the ground floor on National Boulevard and Venice Boulevard, as well as an internal courtyard for the use of employees and occasional private tenant events.

The Project would propose three driveways:

- One commercial driveway and garage entrance from National Blvd., with right-only turns in/out from National Blvd.
- One commercial driveway and garage entrance from Venice Blvd. onto the eastern edge of the Project site, with right-only turns in/out from Venice Blvd.
- One driveway from Washington Blvd., right-turn in only, leading to the Venice Blvd. garage entrance and driveway exit.

Currently the EIR project description is expected to rely on the three driveways proposed above. As a Project Alternative in the EIR, the Project will also explore an alternative driveway configuration, with a new fully-signalized driveway on Venice Boulevard, a right-in/right-out driveway on National Boulevard, and emergency access only from Washington Boulevard.

The Culver City parcel is currently developed with two warehouse buildings totaling 18,821 sf. A 9,739 sf building currently functions as storage space and a 9,082 sf building is currently vacant. The balance of the Culver City Parcel consists of surface parking and vehicular access that supports the existing uses on the Project Site. The Los Angeles parcel is currently improved with a single warehouse building, 51,500 sf of which is used as office space. Prior to October 2020, the Los Angeles parcel was also comprised of 24,550 sf of furniture retail space. There are 70 spaces of enclosed vehicular parking on the Los Angeles Parcel.

Figure 1 shows the site plan for the Project. See the proposed approach for Site Plan Review in the following section.

CEQA Transportation Analysis Requirements

This section describes the proposed approaches for the CEQA transportation analysis as outlined in the Culver City Guidelines and the City of Los Angeles (Freeway Safety Analysis only).

Programs, Plans, Ordinances, and Policies

Fehr & Peers will review plans, programs, ordinances, and policies related to the transportation system in both the City of Culver City and the City of Los Angeles.

Vehicle Miles Traveled Analysis

The Project will follow the lead agency's guidance for the VMT analysis. The Project is within a ½ mile from the Metro E (Expo) Line Culver City Station Transportation Priority Area (TPA) and is screened from conducting a vehicle miles traveled (VMT) analysis. Therefore, the Project is presumed to have a less than significant impact on VMT.

Geometric Design Hazards

Fehr & Peers will review potential on-street geometric design hazards caused by the Project per the City of Culver City's guidance.

Freeway Safety Analysis

As part of the LADOT TAG Freeway Safety Analysis Screening, the study will analyze freeway off-ramps where 25 or more Project trips are added in either the AM or PM peak hour. This analysis will evaluate the Project's potential to cause or lengthen a forecasted off-ramp queue on the freeway mainline that could lead to a potential safety impact due to speed differentials between vehicles exiting the freeway off-ramps and vehicles traveling on the freeway mainline. Using the preliminary Project trip generation and distribution, the following off-ramp locations are proposed for further safety analysis:

1. I-10 WB Off-Ramp & Robertson Boulevard
2. I-10 WB Off-Ramp & Venice Boulevard
3. I-10 WB Off-Ramp & Washington Boulevard

Supplemental Transportation Analysis Requirements

This section describes the proposed approaches for the non-CEQA transportation analysis for the City of Culver City.

Traffic Operations

Project Trip Generation

Trip generation rates from the new Trip Generation, 11th Edition (Institute of Transportation Engineers [ITE], 2021) were used to estimate the number of trips for the Project. ITE trip generation rates for General Office Building (ITE Code 710) for a Dense Multi-Use Urban context were used to estimate trips for the office use. This variant of the ITE rate already accounts for transit mode share, reflecting the proximity of the Culver City Metro Rail station and several high-frequency bus stops, so no additional adjustment was made for transit trips. **Table 1** presents the estimated trip generation. The Project is expected to generate an estimated 403 vehicle trips (352 inbound/51 outbound) during the AM peak hour and 412 vehicle trips (64 inbound/348 outbound) during the PM peak hour. A trip credit was applied to account for the trip generation of the existing office land use as well as the furniture retail land uses that occupied the Project site prior to October 2020 since the historical counts that will be used for the Existing analysis were taken in 2019.

Trip Distribution

The forecasted regional vehicular trip distribution of the project was modeled in the Culver City travel demand model in a 2019 scenario. This regional distribution was developed based on several

factors including the typology of proposed office land use, the geographic distribution of population and activity centers in the surrounding area, and the project access points in relation to the surrounding street and freeway system. The regional trip distribution was translated into a local trip distribution based on street and lane configuration, allowable turning movements, and likely vehicular ingress/egress routes.

Figure 2 illustrates the trip distribution pattern of the project trips.

Study Intersections and Street Segments

This study will analyze the following intersections under both driveway alternatives, shown in **Figure 3**:

1. I-10 WB Off-Ramp & Robertson Boulevard
2. National Boulevard & Robertson Boulevard
3. National Boulevard & I-10 EB On-Ramp
4. Robertson Boulevard & I-10 WB On-Ramp (unsignalized)
5. Robertson Boulevard & Venice Boulevard
6. National Boulevard & Venice Boulevard
7. Helms Avenue & Venice Boulevard
8. Cattaraugus Avenue & Venice Boulevard
9. La Cienega Boulevard & Venice Boulevard
10. I-10 WB Off-Ramp & Venice Boulevard
11. Ivy Station & National Boulevard
12. Culver Boulevard & Washington Boulevard (W)/Watseka Avenue
13. Culver Boulevard & Washington Boulevard (E)
14. Ince Boulevard & Washington Boulevard
15. Robertson Boulevard & Washington Boulevard
16. Landmark Street & Washington Boulevard
17. National Boulevard & Washington Boulevard
18. Wesley Street & Washington Boulevard
19. Helms Avenue & Washington Boulevard
20. La Cienega Avenue & Washington Boulevard
21. Fairfax Avenue & Washington Boulevard
22. I-10 WB Off-Ramp & Washington Boulevard

Additionally, the one-block segment of Hutchison Avenue between Venice Boulevard and Washington Boulevard will be studied for potential neighborhood intrusion.

Data Collection

Due to atypical current conditions caused by the COVID-19 pandemic, new counts will not be collected at the study intersections. Instead, recent historical counts from previous studies in the area and/or from count company databases will be used (counts are from 2019). For locations where recent historical counts are unavailable, Streetlight data and historic counts at nearby locations will be used to estimate volumes. The historic counts and related estimates will be used as the base year for the Existing analysis.

Buildout/Future Year Forecasts

A list of pending and approved related projects from Culver City and the City of Los Angeles in the vicinity of the Project that are expected to be completed by the buildout horizon will be included in the forecasting effort. Related projects that have recently opened or will open in the near-term will be added to the estimates of Existing baseline conditions based on historic count data. **Figure 4** illustrates the related projects within 1.5 mile radius of the Project site. **Table 2** shows the list of related projects.

An ambient growth rate of 0.8% per year will be used to forecast future year volumes. This growth rate was determined using the Culver City travel demand model.

Intersection Level of Service (LOS) Analysis

The assessment of the proposed project will involve evaluating intersection level of service (LOS) for the following scenarios during weekday AM and PM peak hour conditions:

- Existing
- Existing with Project
- Future (2025) Base
- Future (2025) with Project
- Horizon (2045) Base
- Horizon (2045) with Project

Any adverse project traffic effects will be identified by comparing Existing LOS to Existing with Project LOS, Future (2025) Base LOS to Future (2025) with Project LOS, and Horizon (2045) Base LOS to Horizon (2045) with Project LOS. Based on the location of the study intersection, each agency's respective criteria will be used to identify project traffic effects.

Synchro 11 software and the Highway Capacity Manual 6th Edition (HCM) methodology will be used to evaluate the operation of the study intersections. Fehr & Peers assumes that the intersection analysis will require microsimulation in the immediate vicinity of the Project site to correctly evaluate the closely-spaced intersections and new geometric and signal changes that have taken place since 2019.

Driveway LOS and Queuing Analysis

Synchro 11 software and the Highway Capacity Manual 6th Edition (HCM) methodology will be used to evaluate the operation of the Project driveways.

Neighborhood/Residential Street Analysis

The Project will analyze one residential street segment, Hutchison Avenue between Venice Boulevard and Washington Boulevard, for any significant conditions. If any are found, the Applicant will work with city to determine if any improvement measures are needed.

Transit Operations Analysis

Travel Demand/Capacity by Route Analysis

The Project will analyze transit demand by route based on the trip generation estimates and mode split. The new transit trips will be assigned to the transit routes/stops that serve the project site to estimate whether the existing capacity can accommodate the increase in transit trips generated by the Project. **Table 3** lists the transit routes within one mile of the Project site.

Transit Delay by Route Analysis

Based on the preliminary trip generation as shown in **Table 1**, the Project is estimated to generate over 300 PM peak hour vehicle trips and therefore will conduct a qualitative transit delay analysis per the Culver City Guidelines.

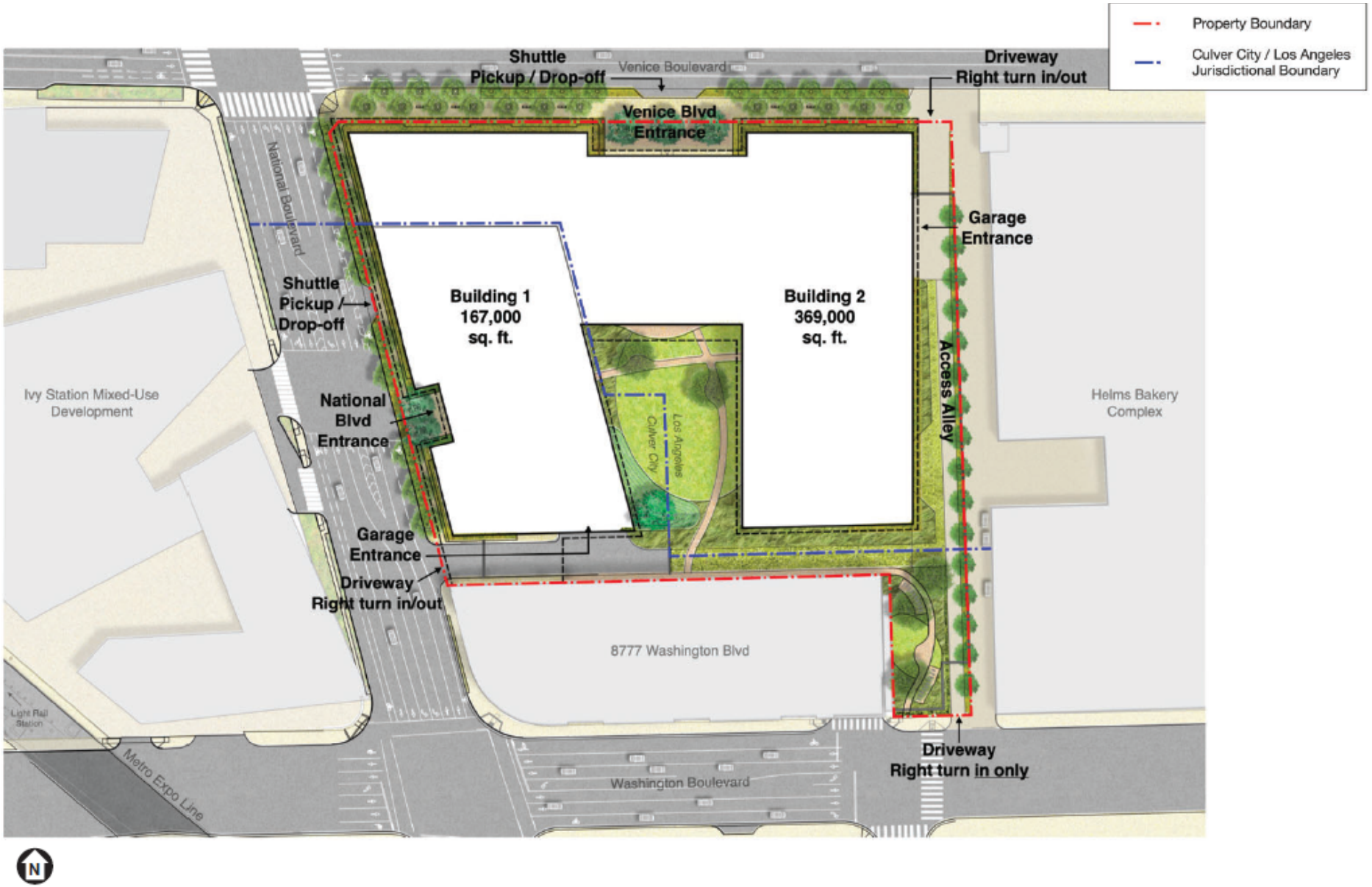
The methodology for this analysis will be discussed with the Transportation Department to estimate the transit delay caused by the Project.

Hazardous Conditions

The Project will assess the potential for hazardous conditions for transit operations due to the Project's vehicular trip generation and design elements.

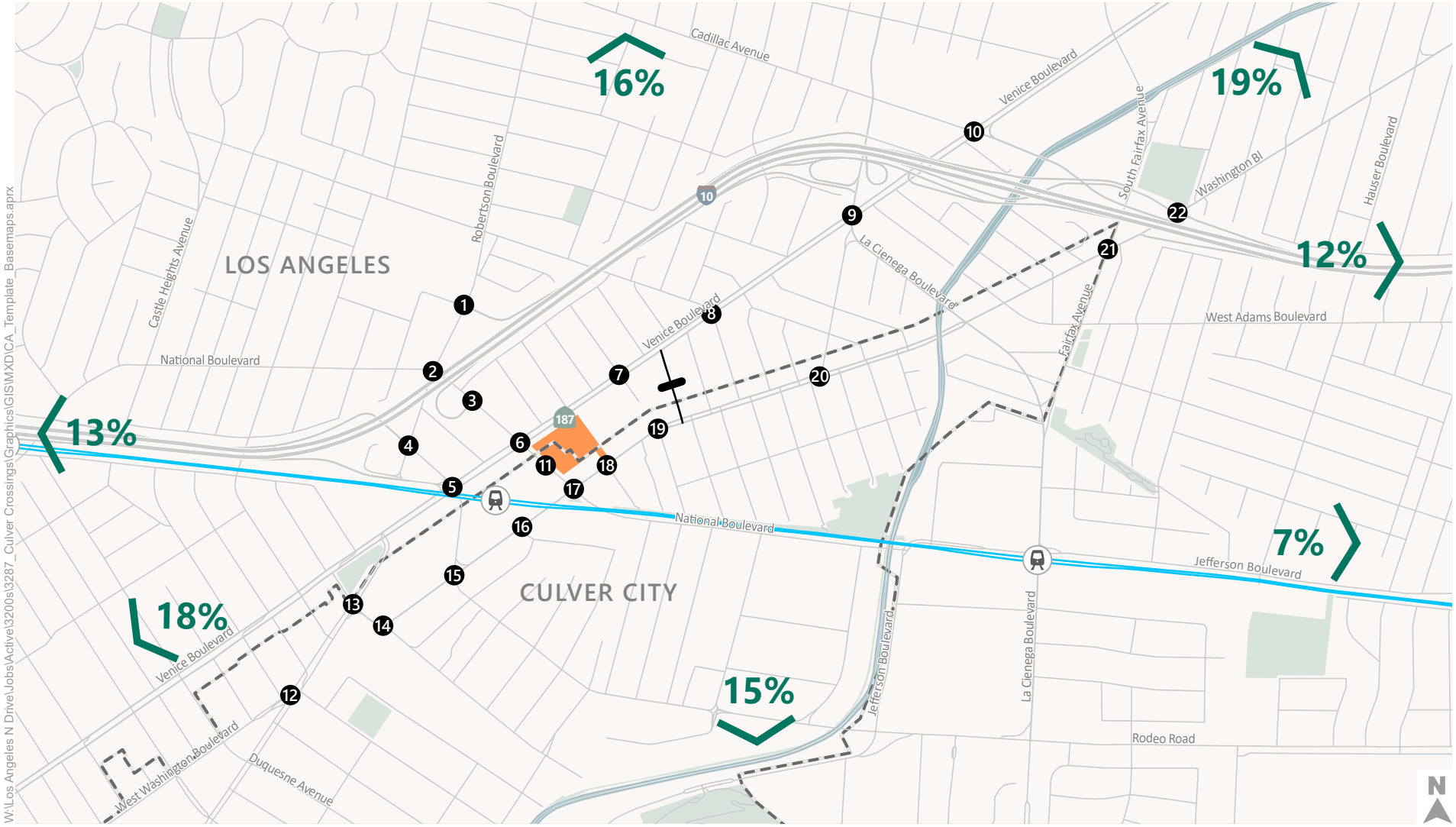
Site Plan Review

A marked-up site plan will illustrate vehicles maneuvering within the site. This review will also include bicycle/pedestrian access to the Project site.



Source: Trammell Crow Company, 2021.

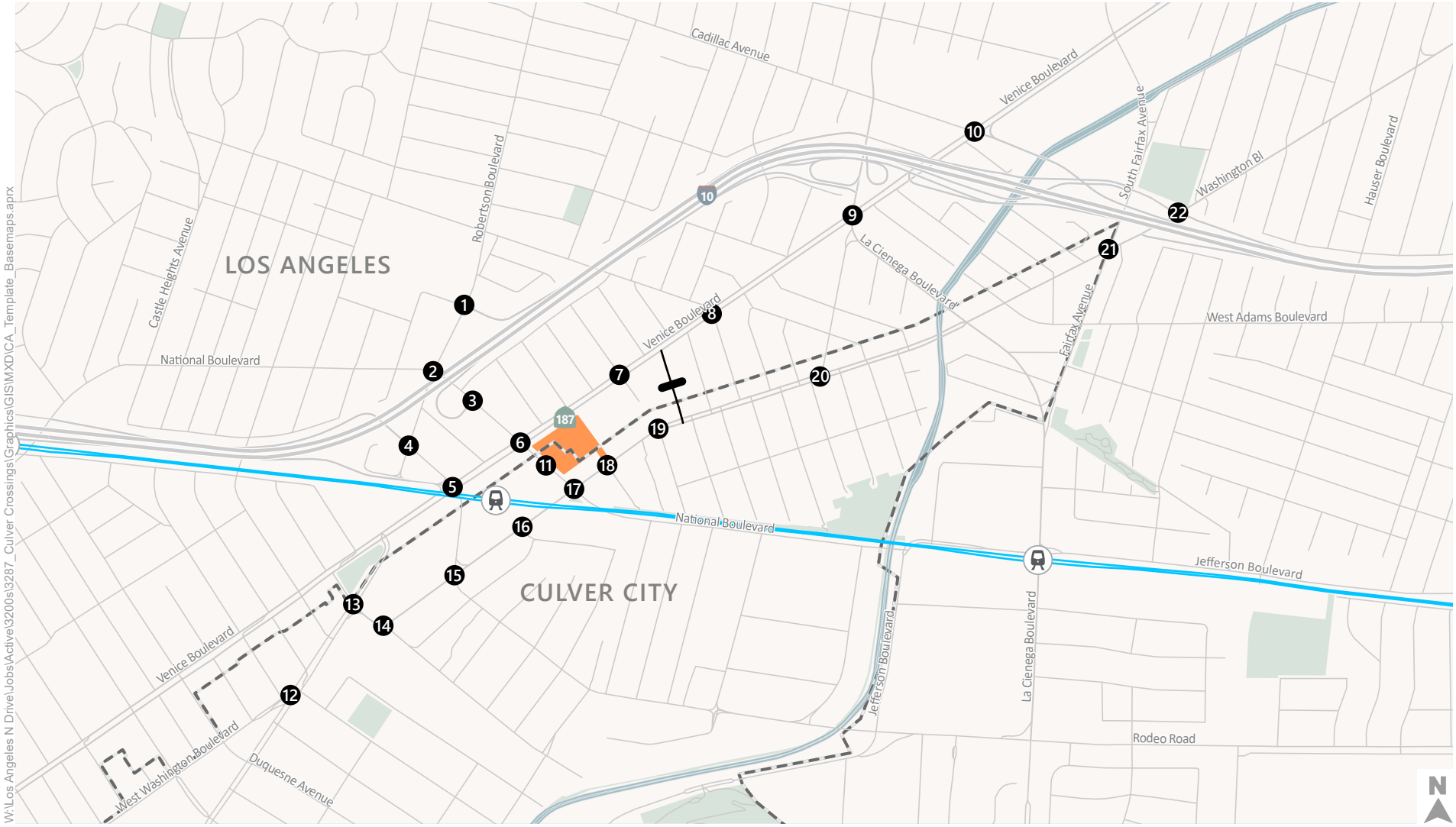
Figure 1
Site Plan



Study Intersections
Study Roadway Segments
Metro Rail Stations
Metro E Line
Cities
Parks
Project Site

Figure 2

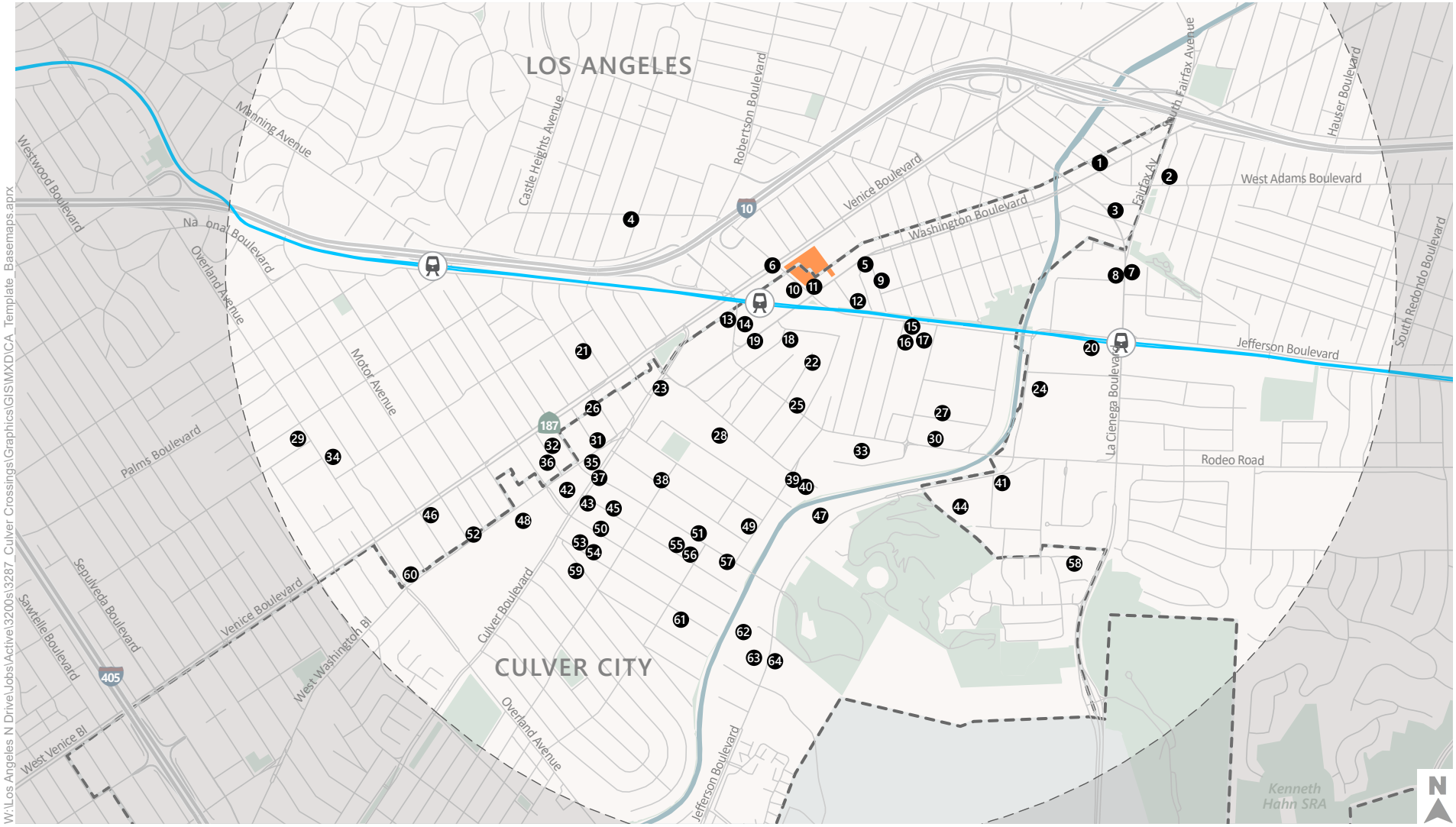
Trip Distribution



Study Intersections
Study Roadway Segments
Metro Rail Stations
Metro E Line
Cities
Parks
Project Site

Figure 3

Study Locations



Related Projects
Project Site
1.5-mile radius from Project Site
Metro Rail Stations
Metro E Line
Cities
Parks

Figure 4
Related Projects

TABLE 1
CROSSINGS CAMPUS
PROJECT TRIP GENERATION ESTIMATES

Land Use	ITE Land Use Code	Size	AM Peak Hour			PM Peak Hour			AM Peak Hour Trips			PM Peak Hour Trips		
			Rate [a]	In%	Out%	Rate [a]	In%	Out%	In	Out	Total	In	Out	Total
PROPOSED PROJECT														
Office	710 [b]	536.0 ksf	0.84	87%	13%	0.87	16%	84%	392	58	450	75	391	466
Culver City portion		*167.0 ksf*	*0.84*	*87%*	*13%*	*0.87*	*16%*	*84%*	*122*	*18*	*140*	*23*	*122*	*145*
Los Angeles portion		*369.0 ksf*	*0.84*	*87%*	*13%*	*0.87*	*16%*	*84%*	*270*	*40*	*310*	*51*	*270*	*321*
TOTAL DRIVEWAY TRIPS									392	58	450	75	391	466
TOTAL PROJECT EXTERNAL VEHICLE TRIPS									392	58	450	75	391	466
EXISTING USE ADJUSTMENT [c]														
Office	710 [b]	51.5 ksf	0.84	87%	13%	0.87	16%	84%	37	6	43	7	38	45
Furniture Stores	890	24.6 ksf	0.26	71%	29%	0.52	47%	53%	4	2	6	6	7	13
Less: Walk/Bike/Transit Adjustment [d]			*25%*			*25%*			*(1)*	*(1)*	*(2)*	*(2)*	*(2)*	*(4)*
Net External Vehicle Trips									3	1	4	4	5	9
TOTAL EXISTING TRIPS									40	7	47	11	43	54
NET INCREMENTAL EXTERNAL TRIPS									**352**	**51**	**403**	**64**	**348**	**412**

Notes:

[a] Source: Institute of Transportation Engineers (ITE), *Trip Generation, 11th Edition* , 2021.

[b] These rates reflect the "Dense Multi-Use Urban" variant of the General Office Building typology.
These rates account for transit-related vehicle trip reduction, so no further adjustment was made.

[c] Existing land uses information provided by the applicant of the project.

[d] Per the Culver City Transportation Guidelines, a maximum of 25% trip credit can be taken for land uses within 1/4 mile of a rail transit station. The Project site is less than 1/4 mile from the Metro E Line Culver City Station. The rates used for ITE 890 Furniture Stores reflect the "General Urban/Suburban" variant. Therefore, a 25% transit adjustment was taken for this existing land use.

TABLE 2
CROSSINGS CAMPUS
RELATED PROJECTS LIST

No.	Project Location [a]	Land Use	Size	
1	5863 Washington Boulevard	Creative Office	17.5	ksf
2	5775 W Adams Boulevard	Apartments	55	DU
		Retail	2.5	ksf
3	3030 La Cienega Boulevard	Retail	1.25	ksf
4	3301 S Canfield Avenue	Apartments	50	DU
5	8700 Washington Boulevard	Apartments	199	DU
		Live/Work Office	17.25	ksf
		Restaurant	5	ksf
		Retail	17.75	ksf
6	8900 W National Boulevard	Hotel	180	rooms
		Retail	16.456	ksf
		Restaurant	7.33	ksf
7	3200 S La Cienega Boulevard	Apartments	254	DU
8	3221 S La Cienega Boulevard	Mixed Use Apartments	1218	DU
9	3336 Helms Avenue	Condominiums	6	DU
10	8824 National Boulevard	Apartments	200	DU
		Hotel	148	rooms
		Office	210	ksf
		Restaurant	18	ksf
		Retail	20	ksf
11	8777 Washington Boulevard	Office	128	ksf
		Retail	4.5	ksf
12	3434 Wesley Street	Apartments	15	DU
		Office	14.237	ksf
13	3727 Robertson Boulevard	Apartments	12	DU
		Commercial	6.8	ksf
14	3710 Robertson Boulevard	Apartments	141	DU
		Creative Office	64.2	ksf
		Commercial	30.042	ksf
15	8570 National Boulevard	Office	24	ksf
		Retail	4	ksf
16	3516 Schaefer Street	Creative Office	9.338	ksf
17	3505 Hayden Avenue	Creative Office	9	ksf
18	3939 Landmark Street	School	50	students
19	8888 Washington Boulevard	Office	59.559	ksf
		Retail	5.972	ksf
20	3401 S La Cienega Boulevard	Apartments	260	DU
		Office	263	ksf
		Retail	5	ksf

TABLE 2
CROSSINGS CAMPUS
RELATED PROJECTS LIST

21	3739 S Cardiff Avenue	Apartments	74	DU
22	8902 Hubbard	Condominiums	2	DU
23	9300 Culver Boulevard	Mixed Use Office	118	ksf
24	5850 W Jefferson Boulevard	Office	344.947	ksf
25	4116 Higuera Street	Condominiums	2	DU
26	3817 Watseka Avenue	Office	149.439	ksf
27	8511 Warner Drive	Retail/Restaurant	51.52	ksf
28	9336 Washington Boulevard	Office	345.007	ksf
29	3577 S Overland Avenue	Apartments	119	DU
		Restaurant	2	ksf
30	8509 Higuera Street	School	100	students
31	9735 Washington Boulevard	Office	55.477	ksf
		Retail	12.249	ksf
		Restaurant	4.147	ksf
32	3838 S Dunn Drive	Apartments	78	DU
33	8631 Hayden Place	Creative Office	230	ksf
34	3664 S Overland Avenue	Apartments	187	DU
		Restaurant	5	ksf
35	9814 Washington Boulevard	Theater	200	seats
36	3841 S Dunn Drive	Apartments	207	DU
37	LA County	Community College	92	ksf
38	4080 Lafayette Place	Condominiums	5	DU
39	9300 Lucerne	Condominiums	2	DU
40	4219 Ince Boulevard	Condominiums	6	DU
41	5950 W Jefferson Boulevard	Office	64	ksf
		Retail	2	ksf
		Restaurant	4	ksf
42	10000 Washington Boulevard	Retail/Restaurant	8.424	ksf
		Fitness Center	3.687	ksf
43	10000 Culver Boulevard	Cannibis Retail	5.982	ksf
44	6024 W Jefferson Boulevard	Office	123.527	ksf
		Warehouse	64.206	ksf
		Coffee Shop	2.2	ksf
45	4044 Lincoln	Apartments	4	DU
46	10424 W Venice Boulevard	Mixed Use Apartments	79	DU
47	9405 Jefferson Boulevard	Office	65.8	ksf
48	10202 Washington Boulevard	Office	45.85	ksf
49	9615 Lucerne Avenue	Condominiums	2	DU
50	4044 Madison Avenue	Condominiums	4	DU
51	4180 Duquesne Avenue	Condominiums	4	DU

TABLE 2
CROSSINGS CAMPUS
RELATED PROJECTS LIST

52	10375 W Washington Boulevard	Condominiums	108	DU
		Retail	3.6	ksf
53	4030 La Salle Avenue	Condominiums	4	DU
54	4034 La Salle Avenue	Condominiums	4	DU
55	4164 Lincoln	Condominiums	2	DU
56	4170 Lincoln	Condominiums	2	DU
57	4241 Duquesne Avenue	Condominiums	3	DU
58	3814 Lenawee Avenue	Single Family Homes	8	DU
		Assisted Living Facility	110	beds
59	4051 Jackson Avenue	Condominiums	9	DU
60	10601 W Washington Boulevard	Apartments	132	DU
		Office	26	ksf
		Retail	18	ksf
61	4225 La Salle Avenue	Condominiums	2	DU
62	9919 Jefferson Boulevard	Office	62.558	ksf
63	9925 Jefferson Boulevard	Creative Office	51.178	ksf
64	9930 Jefferson Boulevard	Media Studio	84.475	ksf

[a] Project list based on information from City of Culver City and LADOT (November 2021)

TABLE 3
CROSSINGS CAMPUS
TRANSIT ROUTES

Line	Description	Operator
1	Washington Boulevard	Culver City Bus
4	Jefferson Boulevard	Culver City Bus
5	Braddock Drive	Culver City Bus
6	Sepulveda Boulevard	Culver City Bus
7	Culver Bouelvard	Culver City Bus
E	Expo Line	Metro
33	Downtown LA to Santa Monica via Venice Bl	Metro
105	W Hollywood to Vernon via La Cienega Bl	Metro
217	E Hollywood to LA Cienega Station via Hollywood-Fairfax	Metro
617	Beverly - Pico	Metro
17	UCLA - VA Medical Center - Palms	Santa Monica Big Blue Bus
R10	Downtown LA Freeway Express	Santa Monica Big Blue Bus
431	Downtown to Westwood	LADOT Commuter Express
437	Downtown to Culver City/Marina Del Rey/Venice	LADOT Commuter Express

Appendix B: LADOT CEQA Analysis

Appendix B: Crossings Campus Project LADOT CEQA Analysis

Detailed Responses in Support of Determining Plans, Programs, Ordinances, or Policies Applicability

Adapted from Attachment D: Plan Consistency Workshop In Transportation Analysis Guidelines, LADOT, July 2020

Screening Criteria for Policy Analysis

If the answer is "yes" to any of the following questions, further analysis is required to demonstrate that the project does not conflict with a plan, policy, or program.

Screening Criteria	Assessment
Does the project require a discretionary action that requires the decision maker to find that the decision substantially conforms to the purpose, intent and provisions of the General Plan?	Yes
Is the project known to directly conflict with a transportation plan, policy, or program adopted to support multimodal transportation options or public safety?	No
Is the project required to or proposing to make any voluntary modifications to the public right-of-way (i.e., dedications and/or improvements in the right-of-way, reconfigurations of curb line, etc.)?	Yes

Under CEQA, a project is considered consistent with an applicable plan if it is consistent with the overall intent of the plan and would not preclude the attainment of its primary goals. Any inconsistency with an applicable policy, plan, or regulation is only a significant impact under CEQA if the policy, plan, or regulation was adopted for the purpose of avoiding or mitigating an environmental effect and if the inconsistency itself would result in a direct physical impact on the environment.

Plan Consistency Summary

Plan, Program, Ordinance, or Policy	Project Consistency
City of Los Angeles Mobility Plan 2035	The Project's proposed land use and design features, including site access; pedestrian, bicycle and transit accessibility; and loading areas, were reviewed and were found to be consistent with the policies of the Mobility Plan 2035. Venice Boulevard fronting the Project site is part of the Pedestrian-Enhanced District, the Bicycle-Enhanced Network, and the Transit-Enhanced Network. The Project would not conflict with the implementation of future projects in the public right-of-way on these networks.
Citywide Design Guidelines	The Project would not conflict with the circulation components of the *Citywide Design Guidelines*. The guidelines call for incorporating vehicular access such that it does not discourage and/or inhibit the pedestrian experience and promoting a safe, comfortable, and accessible pedestrian experience. The Project would reduce the number of curb cuts compared to existing conditions on National Boulevard (from two to one), maintain the same limited number of curb cuts on Washington Boulevard (one), and proposes a driveway adjacent to an existing driveway along Venice Boulevard that would be widened to accommodate the proposed driveway. The Project would therefore not create additional conflict points between vehicles, pedestrians, and bicyclists. The Project is consistent with these guidelines.
Municipal Code of the City of Los Angeles	The Project and its features are consistent with the City's Municipal Code. The Project would comply with applicable with code requirements such as bicycle parking and adequate sight distance and pedestrian movement controls.
Plan for a Healthy Los Angeles	The Project does not conflict with the *Plan for a Healthy Los Angeles*. It would reduce vehicle trips and vehicle miles traveled by providing employment options for a growing neighborhood residential population and creating a work destination that is easily accessible via public transportation. This Project would also reduce vehicle trips and vehicle miles traveled by implementing a voluntary TDM Program to reduce single-occupancy vehicle travel to and from the Project Site. It would also reduce vehicle trips and vehicle miles traveled due to the infill nature of the Project in a walkable and developing city center environment. The Project would introduce new bicycle parking and additionally would enhance pedestrian rights-of-way by introducing increased sidewalk and parkway widths, and enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. Existing transit options in close proximity to the Project Site would allow for pedestrian and bicycle access to public transit.
Vision Zero Los Angeles	Vision Zero Los Angeles (2017) is a plan that strives to eliminate traffic-related deaths in Los Angeles by 2025 through multiple strategies such as modifying streets to better serve vulnerable road users. The north boundary of the Project is Venice Boulevard, which is identified as part of the HIN. The Project proposes a driveway

	adjacent to an existing driveway along Venice Boulevard. The existing driveway would be widened to accommodate the proposed driveway and would therefore not create any additional conflict points between vehicles, pedestrians, and bicyclists traveling on Venice Boulevard and would not preclude the City from implementing changes associated with Vision Zero. Street trees and other potential impediments to driver and pedestrian visibility would be located in a manner that would maintain safe conditions near the Project driveway. The pedestrian points of entry would be provided along Venice Boulevard and National Boulevard, and bicycle parking would be provided on site. The Project proposes a curbside passenger and shuttle loading zone along the northern frontage, immediately in front of the Venice Boulevard entrance. The loading zone would provide a designated space for shuttles and passenger vehicles to wait in a "turnout" or indentation of the curb that provides sufficient space for vehicles to fully exit the vehicle and bicycle lanes. Although this would still require vehicles to cross the bicycle lane, providing a dedicated and demarcated space congregates these curb demands into one area rather than occurring haphazardly at any location around the site, and following best practices, the bike lane would include "conflict zone" painting (a dashed or broken striping pattern) alerting riders and vehicles of the potential cross-over traffic. Such a curbside loading zone should have no effect on the pedestrian safety as it would not be located at or near a designated pedestrian crossing. The Project is not located in a Safe Routes to School program area. The Project would not conflict with the implementation of future Vision Zero projects in the public right-of-way.
West Adams-Baldwin Hills-Leimert Community Plan	The Project is consistent with the transportation components of the West Adams-Baldwin Hills-Leimert Community Plan. It would support the Community Plan's goals under Land Use & Urban Design and Mobility Chapters.
West Adams-Baldwin Hills-Leimert Community Plan Implementation Overlay District (CPIO)	The Project is consistent with the transportation components of the West Adams-Baldwin Hills-Leimert Community Plan. It would support the CPIO's goals.

Review of Consistency with Mobility Plan 2035

Mobility Plan 2035 provides the policy foundation for achieving a transportation system that balances the needs of all road users. As an update to the City's General Plan Transportation Element (last adopted in 1999), Mobility Plan 2035 incorporates "complete streets" principles and lays the policy foundation for how future generations of Angelenos interact with their streets.

The Project was reviewed to determine consistency with the Mobility Plan 2035 objectives, policies, and programs that pertain to transportation and a project's potential impact on the environment.

The following objectives, policies, and programs are relevant to the Project:

Chapter 2: World Class Infrastructure

- **Policy 2.1 Adaptive Reuse of Streets**
  - Design, plan, and operate streets to serve multiple purposes and provide flexibility in design to adapt to future demands.
    - The Mobility Plan defines Venice Boulevard and National Boulevard as a modified Boulevard II. The Project has frontage on National Boulevard in Culver City. A dedication of land from the project site would be required to provide wider sidewalks along National Boulevard. The applicant is asking for a Waiver of Dedication and Improvement (WDI) to reduce the dedication and provide an easement for the sidewalk along National Boulevard. The waiver would be requested to provide a dedication of 4 feet in lieu of 14 feet at grade and a 0-foot dedication along the portion of National Boulevard in the City of Los Angeles. This waiver/easement would allow for consistent sidewalk widths across the two jurisdictions for an overall sidewalk width of at least 15 feet. However, the Project would not alter adjacent streets or the right-of-way in a manner that would preclude or conflict with future adaptive reuse of streets for multiple purposes, such as transit, pedestrian, and/or automobile uses.
- **Policy 2.3 Pedestrian Infrastructure**
  - Recognize walking as a component of every trip and ensure high-quality pedestrian access in all site planning and public right-of-way modifications to provide a safe and comfortable walking environment.
    - Venice Boulevard is part of the Pedestrian Enhanced District (PED). The Project proposes right-of-way improvements to enhance pedestrian access to, from, and around the Project site:
      - The Project will provide a 15-foot setback for pedestrian and landscaped areas at grade.
      - Building 1 would provide a 4' setback at the street-facing edge along National Boulevard.
    - The Project would enhance pedestrian circulation and promote an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.
- **Policy 2.10 Loading Areas**
  - Facilitate the provision of adequate on and off-street loading areas.
    - The Project proposes a curbside passenger and shuttle loading zone along the northern frontage, immediately in front of the Venice Boulevard entrance. A secondary passenger and shuttle loading zone directly north of the National Boulevard entrance is also planned. Both loading zones would likely have a minimal impact on the surrounding street network as they provide a designated space for shuttles and passenger vehicles to

wait in a "turnout" or indentation of the curb that provides sufficient space for vehicles to fully exit the vehicle and bicycle lanes. Although this would still require vehicles to cross the bicycle lane, providing a dedicated and demarcated space congregates these curb demands into one area rather than occurring haphazardly at any location around the site, and following best practices, the bike lane would include "conflict zone" painting (a dashed or broken striping pattern) alerting riders and vehicles of the potential cross-over traffic. Such a curbside loading zone should have no effect on the pedestrian safety as it would not be located at or near a designated pedestrian crossing.

- Off-street loading would occur adjacent to the parking garage entrance on the LA parcel. Access to the off-street loading is available via the Venice Boulevard driveway.

Chapter 3: Access for All Angelenos

- **Policy 3.1 Access for All**
  - Recognize all modes of travel, including pedestrian, bicycle, transit, and vehicular modes – including goods movement – as integral components of the City's transportation system.
    - The Project's location along a transit-rich corridor, pedestrian-oriented frontage, and proximity to bicycle facilities would encourage the use of active and transit modes. Further, the Project would develop a TDM plan to further reduce vehicle trips to and from the Project site. The Project would introduce new bicycle parking and additionally would enhance pedestrian rights-of-way by introducing increased sidewalk and parkway widths, and enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. The Project would also enhance pedestrian circulation and promote an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.
- **Policy 3.2 People with Disabilities**
  - Accommodate the needs of people with disabilities when modifying or installing infrastructure in the public right-of-way.
    - The Project proposes to widen existing accessible sidewalks along the full frontages along Venice Boulevard and National Boulevard.
- **Policy 3.3 Land Use Access and Mix**
  - Promote equitable land use decisions that result in fewer vehicle trips by providing greater proximity and access to jobs, destinations, and other neighborhood services
    - This Project would reduce vehicle trips and vehicle miles traveled by providing employment options for a growing neighborhood residential population and creating a work destination that is easily accessible via public transportation. This Project would also reduce vehicle trips and vehicle miles traveled by implementing a voluntary TDM Program to reduce single-occupancy vehicle travel to and from the Project Site. It would also

reduce vehicle trips and vehicle miles traveled due to the infill nature of the Project in a walkable and developing city center environment.

- **Policy 3.8 Bicycle Parking**
    - Provide bicyclists with convenient, secure and well-maintained bicycle parking facilities.
        - The Project would provide 175 bicycle parking spaces for employees and visitors, including short-term and long-term spaces, in compliance with respective City codes. The total required bicycle parking for the Project on both sites is 135 spaces. This arrangement exceeds the minimum on-site bicycle parking spaces as set by LAMC.

Chapter 4: Collaboration, Communication & Informed Choices

- **Policy 4.8 Transportation Demand Management Strategies**
    - Encourage greater utilization of Transportation Demand Management (TDM) strategies to reduce dependence on single-occupancy vehicles.
        - This policy encourages greater utilization of Transportation Demand Management Strategies to reduce dependence on single-occupancy vehicles. The Project would support this policy by implementing a TDM Program to reduce single-occupancy vehicle travel to and from the Project Site.
- **Policy 4.13 Parking and Land Use Management**
    - Balance on-street and off-street parking supply with other transportation and land use objectives.
        - LAMC Section 12.21 requires one automobile parking space for each 500 square feet of combined floor area contained within the office, business, commercial, research, and development buildings, and manufacturing or industrial buildings on any lot. Building 2 on the City of Los Angeles parcel is 369,000 square feet. At a rate of one parking space per 500 square feet. Building 2 is required to provide 738 parking spaces. Building 2 is located in the Venice/National TOD Subarea Parcel Group A as part of the West Adams-Baldwin Hills-Leimert Community Plan Implementation Overlay District (CPIO). The CPIO establishes a parking maximum of 90% of the LAMC required parking spaces for the Project. Therefore, Building 2 is required to provide a maximum 664 spaces.
        - Building 1 on the Culver City parcel is 167,000 square feet. Culver City requires one parking space per 350 square feet. Building 1 on the Culver City parcel is required to provide 478 parking spaces.
        - Overall, the Project is required to provide a total of 1,142 vehicle parking spaces. The Project would provide a total of 1,216 vehicular parking spaces within two separate three-level subterranean garages under each proposed building. This total proposed parking provision exceeds the maximum onsite parking requirement as set by the CPIO by 74 spaces, if the project were located solely in Los Angeles and the CPIO area. However. the

Project will meet the maximum requirement upon approval of the proposed CPIO amendment.

- Within the stated objective of this policy, the project is consistent; it does not dedicate surface (above ground) space to parking and is an infill project located within an urban center that has access to jobs, housing, and non-automotive mobility options. The 74 parking spaces that exceed the maximum requirement would be a result of the full buildout of the three floors required to provide the maximum 1,142 spaces.

Chapter 6: Action Plan

- **Program PK.10 Pedestrian Improvement Incentives**
  - Establish an incentive program to encourage projects to retrofit parking lots, structures and driveways to include pedestrian design features.
    - To improve and incentivize pedestrian accessibility, the Project proposes pedestrian entry on National Boulevard and Venice Boulevard. Pedestrian entrances separated from vehicular driveways with curb and sidewalk would provide access from the adjacent streets, parking facilities, and transit stops. The streets immediately bordering the Project Site and all the other streets in the vicinity include sidewalks that facilitate pedestrian movement. The two pedestrian access points are located along the major frontages of the Project site and located to minimize pedestrian-vehicle conflicts; pedestrians accessing the Project site from the Metro E Line Culver City Station do not have to cross Project vehicle driveways to enter the Project site.
- **Program PL.1 Driveway Access**
  - Require driveway access to buildings from non-arterial streets or alleys (where feasible) in order to minimize interference with pedestrian access and vehicular movement.
    - The Project would not add new driveways along an Avenue or Boulevard as designated by LADOT. The Project proposes a driveway adjacent to an existing driveway along Venice Boulevard. The existing driveway would be widened to accommodate the proposed driveway and would therefore not create any additional conflict points between vehicles, pedestrians, and bicyclists traveling on Venice Boulevard. The driveway would be designed to comply with City standards and configured to avoid or minimize potential conflicts with transit services and pedestrian traffic by providing curb and sidewalk to separate pedestrian movements from vehicular movements. Because the Project is fronted on three sides by arterials, making use of side streets for driveways is not possible, but the Project is proposing alley access on its east side.

Plan Consistency Analysis

Question	Guiding Questions	Relevant Plans, Policies, and Programs	Evaluation
A. Mobility Plan 2035 PROW Classification Standards for Dedications and Improvements			
A.1	Does the project include additions or new construction along a street designated as a Boulevard I, and II, and/or Avenue I, II, or III on property zoned for R3 or less restrictive zone?	MP 2.1, 2.3, 3.2, and Mobility Plan 2035 Street Designations and Standard Roadway Dimensions	Yes. The LA 2035 Mobility Plan defines Venice Boulevard and National Boulevard as a modified Boulevard II. The Project has frontage on National Boulevard in Culver City. The land use designation is C2-2D-CPIO (Community Commercial).
A.2	If A.1 is yes, is the project required to make additional dedications or improvements to the Public Right of Way as demonstrated by the street designation?		Yes. A dedication of land from the project site may be required to provide wider sidewalks along National Boulevard.
A.3	If A.2 is yes, is the project making the dedications and improvements as necessary to meet the designated dimensions of the fronting street (Boulevard I, and II, or Avenue I, II, or III)?		No.
A.4	If the answer to A.3. is NO, is the project applicant asking to waive from the dedication standards?		The applicant is asking for a Waiver of Dedication and Improvement (WDI) to reduce the dedication and provide an easement for a sidewalk along National Boulevard. The waiver would be requested to provide a dedication of 4 feet in lieu of 14 feet and a 0-foot dedication along the portion of National Boulevard in the City of Los Angeles.
B. Mobility Plan 2035 PROW Policy Alignment with Project-Initiated Changes			
B.1	Does the project physically modify the curb placement or turning radius and/or physically alter the sidewalk and parkways space that changes how people access a property?	MP 2.1, 2.3, 3.2, 2.10, and Street Designations and Standard Roadway Dimensions	The Project will modify vehicle access as follows: • Vehicular access to the new below-grade parking, as well as loading docks and trash areas, would be provided via two main driveways: one on National Boulevard serving the building on the Culver City Parcel, and one on Venice Boulevard serving the building on the Los Angeles Parcel. Ingress and egress to the

			Project site would be right turn in/out only. • A third driveway from Washington Boulevard would provide ingress only (right in only) to the Culver City and Los Angeles parcels. 2.3 Pedestrian Infrastructure: This policy recognizes walking as a component of every trip and ensures high quality pedestrian access is considered in all site planning and public right-of-way modifications to provide a safe and comfortable walking environment. The Project proposes right-of-way improvements to enhance pedestrian access to, from, and around the Project site: • The Project will provide a 15-foot setback for pedestrian and landscaped areas at grade. • Building 1 would provide a 4' setback at the street-facing edge along National Boulevard. 3.2 People with Disabilities: When designing developments, it is important to accommodate the needs of all people with varying levels of mobility. The Project proposes to widen existing accessible sidewalks along the full frontages along Venice Boulevard and National Boulevard. 2.10 Loading Areas: When designing developments, it is important to consider a loading area that minimally impacts other travelers such as people driving or walking. The Project proposes a curbside passenger and shuttle loading zone along the northern frontage, immediately in front of the Venice Boulevard entrance. A secondary passenger and shuttle loading zone directly north of the National Boulevard entrance is also planned. Both loading zones would provide a designated space for shuttles and passenger vehicles to wait in a "turnout" or indentation of the curb that provides sufficient space for vehicles to fully exit the vehicle and bicycle lanes. Although this would still require vehicles to cross the bicycle lane, providing a dedicated and demarcated space congregates these curb demands into one area rather than occurring haphazardly at any location around the site, and following best practices, the bike lane would include "conflict zone" painting (a dashed or broken

			striping pattern) alerting riders and vehicles of the potential cross-over traffic. Such a curbside loading zone should have no effect on the pedestrian safety as it would not be located at or near a designated pedestrian crossing.Off-street loading would occur adjacent to the parking garage entrance on the LA parcel. Access to the off-street loading is available via the Venice Boulevard driveway.
B.2	Does the project add new driveways along a street designated as an Avenue or a Boulevard that conflict with LADOT's Driveway Design Guidelines?	MP 2.10, PL.1, CDG 2, MPP 321	No. The Project would not add new driveways along an Avenue or Boulevard as designated by LADOT. The driveway on Venice Boulevard will be part of an existing driveway and would be designed to comply with City standards and configured to avoid or minimize potential conflicts with transit services and pedestrian traffic by installing marked crosswalks, and providing curb and sidewalk to separate pedestrian movements from vehicular movements.
B.2.1	Would the physical changes in the public right of way or new driveways that conflict with LADOT's Driveway Design Guidelines degrade the experience of vulnerable roadway users such as modify, remove, or otherwise negatively impact existing bicycle, transit, and/or pedestrian infrastructure?	Mobility Plan 2035: Transit Enhanced Network, Bicycle Enhanced Network, Bicycle Lane Network, Pedestrian Enhanced District, Neighborhood Enhanced Network, High Injury Network, TOC Guidelines	Pedestrian Enhanced District: Mobility Plan 2035 identifies Pedestrian Enhanced Districts (PED) where initial analysis suggests arterials can be improved and further analysis and prioritization will occur as funding and projects become available. Venice Boulevard is part of the PED. The Project will provide a 15-foot setback for pedestrian and landscaped areas at grade Neighborhood Enhanced Network: The Neighborhood Enhanced Network (NEN) is a selection of local streets to provide comfortable and safe routes for localized travel of slower-moving modes, such as walking or biking. The Project frontages are not along streets that are part of the NEN. Transit Network: This policy identifies specific streets as part of the Transit Enhanced Network (TEN) to receive improvements that enhance the performance and reliability of existing and future bus service. Venice Boulevard is part of TEN. The Project Site is located in an area well served by public transportation, including the Los Angeles County Metropolitan Transportation Authority (Metro), the Los Angeles Department of Transportation (LADOT), and Culver City Department of Transportation.

			Bicycle Networks: This policy establishes a Bicycle Enhanced Network (BEN), which is comprised of protected bicycle lanes and bicycle paths, to provide bikeways for a variety of users. Venice Boulevard is part of the BEN (Tier 1). Vision Zero: The Project frontages along Venice Boulevard have been identified as part of the City's High Injury Network. The Project is providing driveway access to the site on Venice Boulevard. This driveway however does not increase the potential for additional vehicle, pedestrian, and bicycle conflicts on Venice Boulevard as it would be functionally part of an existing driveway. The Project proposes a curbside passenger and shuttle loading zone along the northern frontage, immediately in front of the Venice Boulevard entrance. The loading zone would provide a designated space for shuttles and passenger vehicles to wait in a "turnout" or indentation of the curb that provides sufficient space for vehicles to fully exit the vehicle and bicycle lanes. Although this would still require vehicles to cross the bicycle lane, providing a dedicated and demarcated space congregates these curb demands into one area rather than occurring haphazardly at any location around the site, and following best practices, the bike lane would include "conflict zone" painting (a dashed or broken striping pattern) alerting riders and vehicles of the potential cross-over traffic. Such a curbside loading zone should have no effect on the pedestrian safety as it would not be located at or near a designated pedestrian crossing. Transit Oriented Community: The Transit-Oriented Community (TOC) guidelines define parameters of housing incentives based on considerations such as proximity to high-quality transit, type of housing, and the land uses being replaced. The location of the Project site qualifies as Tier 4 per ZIMAS, but as an office project will not utilize TOC
B.2.2	Would the physical modifications or new driveways that conflict with LADOT's Driveway Design Guidelines preclude the City from		The Project proposes three driveways: one along Venice Boulevard, one along National Boulevard, and an ingress only driveway along Washington Boulevard that would not conflict with LADOT's Driveway Design

	advancing the safety of vulnerable roadway users?		Guidelines. The Project does not propose more driveways than allowed by the City's maximum standard and would not preclude the City from advancing the safety of vulnerable roadway users.
C. Network Access			
C1.1	Does the project propose to vacate or otherwise restrict public access to a street, alley, or public stairway?	MP 3.9	No. The Project does not propose to vacate or restrict public access along the street, alley, or other access points.
C.1.2	If the answer to C.1.1 is Yes, will the project provide or maintain public access to people walking and biking on the street, alley or stairway?		N/A.
C.2.1	Does the project create a cul-de-sac or is the project located adjacent to an existing cul-de-sac?	MP 3.10	No. The Project does not create, nor is it adjacent to an existing cul-de-sac.
C.2.2	If yes, will the cul-de-sac maintain convenient and direct public access to people walking and biking to the adjoining street network?		N/A.
D. Parking Supply and Transportation Demand Management			
D.1	Would the project propose a supply of onsite parking that exceeds the baseline amount as required in the Los Angeles Municipal Code or a Specific plan, whichever requirement prevails?	MP 3.8, 4.8, 4.13	LAMC Sec 12.21's parking requirement policy for commercial and institutional buildings requires one automobile parking space for each 500 square feet of combined floor area contained within all the office, business, commercial, research, and development buildings, and manufacturing or industrial buildings on any lot. LAMC Section 12.21 requires one automobile parking space for each 500 square feet of combined floor area contained within the office, business, commercial, research, and development buildings, and manufacturing or industrial buildings on any lot. Building 2 on the City of Los Angeles parcel is 369,000 square feet. At a rate of one parking space per 500 square feet. Building 2 is required to provide 738 parking spaces. Building 2 is located in the Venice/National TOD Subarea Parcel

			Group A as part of the West Adams-Baldwin Hills-Leimert Community Plan Implementation Overlay District (CPIO). The CPIO establishes a parking maximum of 90% of the LAMC required parking spaces for the Project. Therefore, Building 2 is required to provide a maximum 664 spaces. Building 1 on the Culver City parcel is 167,000 square feet. Culver City requires one parking space per 350 square feet. Building 1 on the Culver City parcel is required to provide 478 parking spaces. Overall, the Project is required to provide a total of 1,142 vehicle parking spaces. The Project would provide a total of 1,216 vehicular parking spaces within two separate three-level subterranean garages under each proposed building. This total proposed parking provision exceeds the maximum onsite parking requirement as set by the CPIO by 74 spaces, if the project were located solely in Los Angeles and the CPIO area. However. the Project will meet the maximum requirement upon approval of the proposed CPIO amendment. Within the stated objective of this policy, the project is consistent; it does not dedicate surface (above ground) space to parking and is an infill project located within an urban center that has access to jobs, housing, and non-automotive mobility options. The 74 parking spaces that exceed the maximum requirement would be a result of the full buildout of the three floors required to provide the maximum 1,142 spaces.
D.2	If the answer to D.1. is YES, would the project propose to actively manage the demand of parking by independently pricing the supply to all users (e.g. parking cash-out), or for residential properties, unbundle the supply from the lease or sale of residential units?		4.8 Transportation Demand Management Strategies: This policy encourages greater utilization of Transportation Demand Management Strategies to reduce dependence on single-occupancy vehicles. This total proposed parking provision exceeds the maximum onsite parking requirement as set by the CPIO by 74 spaces, if the project were located solely in Los Angeles and the CPIO area. However. the Project will meet the maximum requirement upon approval of the proposed CPIO amendment.; therefore, transportation demand management strategies are not needed.

			The Project would still provide a suite of TDM measures including: • TDM Support Services • Transit Subsidies • Bicycle subsidies • Intercampus Shuttle • Rideshare • Secure Bicycle Parking • Campus Bike Share Program • Pedestrian Network Improvements • Marketing and Communications • Commuter Benefits • Commuter Club • Commute Expert Program • Emergency Ride Home • On-site Services
D.3	Would the project provide the minimum on and off-site bicycle parking spaces as required by Section 12.21 A.16 of the LAMC?		3.8 Bicycle Parking: The Project would provide 175 bicycle parking spaces for employees and visitors, including short-term and long-term spaces, in compliance with respective City codes. Pursuant to LAMC Section 12.21 A.4, for all commercial, institutional, and industrial uses that require automobile parking, short- and long-term bicycle parking shall be provided. For office use, 1 short-term bicycle parking space must be provided per 10,000 sf (minimum 2) and 1 long-term bicycle parking space must be provided per 5,000 sf (minimum 2). The Project is required to provide 37 short-term spaces and 74 long- term spaces, for a total of 111 spaces. Pursuant to CCMC Section 17.320.045 A.3, for all commercial, institutional, and industrial uses that require automobile parking, bicycle parking shall be provided. For non-residential uses providing employment, bicycle spaces equal to a minimum of 5% of the required vehicle spaces will be provided. The Project on the Culver City parcel is required to provide 477 vehicle parking spaces, which is equivalent to 24 bicycle parking spaces. The total required bicycle parking for the Project on both sites is 135 spaces. This

			arrangement exceeds the minimum on-site bicycle parking spaces as set by LAMC.
D.4	Does the Project include more than 25,000 square feet of gross floor area construction of new non-residential gross floor?		Yes. The Project includes more than 25,000 square feet of gross floor area construction of new non-residential gross floor. The Project 536,000 sf of proposed new floor area for office use.
D.5	If the answer to D.4. is YES, does the project comply with the City's TDM Ordinance in Section 12.26 J of the LAMC?		Yes. The Project does comply with the City's TMD Ordinance in Section 12.26 J of the LAMC. The Project would provide pedestrian access from entrances located on the perimeter of the Project Site from National Boulevard and Venice Boulevard.
E. Consistency with Regional Plans			
E.1	Does the Project or Plan apply one the City's efficiency-based impact thresholds (i.e. VMT per capita, VMT per employee, or VMT per service population) as discussed in Section 2.2.3 of the TAG?		No. The Project is less than 600 feet from the Metro E Line Culver City Station Transportation Priority Area (TPA) and is screened from conducting a vehicle miles traveled (VMT) analysis according to the Culver City guidelines. Culver City is the lead agency for this Project.
E.2	E.2 If the Answer to E.1 is YES, does the Project or Plan result in a significant VMT impact?		N/A.
E.3	If the Answer to E.1 is NO, does the Project result in a net increase in VMT?		The Project is less than 600 feet from the Metro E Line Culver City Station Transportation Priority Area (TPA) and is screened from conducting a vehicle miles traveled (VMT) analysis according to the Culver City guidelines. Culver City is the lead agency for this Project. Therefore, the Project is presumed to have a less than significant impact on VMT.
E.4	If the Answer to E.2 or E.3 is YES, then further evaluation would be necessary to determine whether such a project or land use plan would be shown to be consistent with VMT and GHG reduction goals of the SCAG RTP/SCS		N/A.

Review of Consistency with West Adams-Baldwin Hills-Leimert Community Plan

The West Adams-Baldwin Hills-Leimert Community Plan (Community Plan), adopted in 1998 and amended in 2016 as part of the Mobility Plan 2035 Update, is one of 35 community plans in the City of Los Angeles that establishes the policies and programs that inform the framework for local land use, circulation, and service systems within the selected community plan area. Per the City's *Transportation Assessment Guidelines*, a review of the Community Plan was conducted to evaluate whether the proposed Project conflicts with or precludes the implementation of the community plan framework.

The Community Plan contains transportation-related objectives, policies, and programs in Chapter 3: Land Use & Urban Design and Chapter 4: Mobility. The Project was reviewed to determine consistency with the Community Plan objectives, policies, and programs that pertain to transportation and a project's potential impact on the environment.

The following objectives, policies, and programs are relevant to the Project:

Chapter 3: Land Use & Urban Design

- **Commercial Areas**
  - Goal LU14: A community that conserves, enhances and regenerates its distinctive "main street" character by promoting continued pedestrian orientation of commercial areas.
    - The Project would support this policy by enhancing pedestrian circulation and promoting an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.
  - Goal LU20: A community where residents will be able to access their daily needs by walking, biking or using other sustainable modes of transportation.
    - The Project would support this policy by introducing development that is conducive to walking, biking, and taking transit. The Project would introduce new bicycle parking and additionally would enhance pedestrian rights-of-way by introducing increased sidewalk and parkway widths, and enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. Existing transit options in close proximity to the Project Site would allow for pedestrian and bicycle access to public transit.
- **Transit-Oriented Community Centers**
  - Goal LU40: A community where the economic vitality of commercial nodes, centers and transit-oriented development areas is increased by encouraging contextual new development that maximizes access to transit, jobs, goods and services, and conserves desirable community character.
    - This Project supports this policy as it is located in an existing, established commercial node near the Metro E Line Culver City Station. Existing transit options in close proximity to the Project Site would allow for pedestrian and bicycle access to public transit.

- Goal LU43: A community that promotes economic revitalization within community commercial nodes, centers and transit-oriented development areas by ensuring enhanced pedestrian orientation.
  - This Project would support this policy by locating required vehicle parking within an underground structure. The Project would also support this policy by enhancing pedestrian circulation and promoting an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.

Chapter 4: Mobility

- **Mobility Issues and Opportunities**
  - Goal M2: A circulation system that supports successful neighborhood commercial areas by providing multi-modal access that accommodates public open space and gathering places, and streets that enhance sustainable watershed management.
    - The Project would support this policy by introducing development that is conducive to walking, biking, and taking transit. The Project would introduce new bicycle parking and additionally would enhance pedestrian rights-of-way by introducing increased sidewalk and parkway widths, and enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. Existing transit options in proximity of the Project Site would allow for pedestrian and bicycle access to public transit.
- **Walking**
  - Goal M3: A community-wide pleasant street environment that is universally accessible, safe, and convenient for pedestrians.
    - The Project would support this policy by enhancing pedestrian circulation and promoting an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. Pedestrian access to the Project would be provided along National Boulevard and Venice Boulevard, facing the streets and sidewalks.
- **Bicycling**
  - Goal M4: A safe, comprehensive, and integrated bikeway network that is accessible to all, and encourages bicycling for recreation and transportation.
    - The proposed Project would support this policy by providing 175 secure bicycle parking spaces, including spaces for employees and visitors, short-term spaces, and long-term spaces in compliance with respective City codes. The Project will provide secure bike lockers and cages on-site as well as showers.

- **Public Transit**
    - Goal M5: An integrated land use and transit strategy that directs growth to areas that are accessible by transit facilities and services.
        - The proposed Project would support this policy by introducing development that is conducive to walking, biking, and taking transit. The Project is located less than 600 feet from the Metro E Line Culver City Station and a number of existing bus lines in proximity to the Project Site that would promote convenient access between the Project and the transit system.
- **Motorized Vehicles**
    - Goal M9: A community where air quality and the health of residents is improved as a result of decreased single-occupant automobile demand and reduced vehicle miles traveled.
        - The Project's location along a transit-rich corridor, pedestrian-oriented frontage, and proximity to bicycle facilities would encourage the use of active and transit modes. Further, the Project would develop a TDM plan to further reduce vehicle trips to and from the Project site.

Review of Consistency with West Adams-Baldwin Hills-Leimert Community Plan Implementation Overlay District

The West Adams-Baldwin Hills-Leimert Community Plan Implementation Overlay District (CPIO) addresses the various land use issues in the community and provides regulations tailored to the specific needs for several CPIO subareas identified for the plan area.

The CPIO regulates permitted land uses, height, bulk and overall design of buildings along the major commercial corridors of the plan area as well as encourages sustainable, mixed-use development around transit stations, promote a greater diversity of retail and neighborhood services that provide access to healthy foods and physical activity.

The following purposes are relevant to the Project:

Section 3. Purposes

- **3.C.** To foster revitalization of properties along the commercial corridors and at major intersection nodes throughout the Community Plan Area.
    - This Project would redevelop an existing developed site and is located in an existing, established commercial node near the Metro E Line Culver City Station. The Project would also enhance pedestrian circulation and promote an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station. The infill nature of the Project in a walkable and developing city center environment would also help support this goal.

- **3.D.** To promote and facilitate revitalization of properties that can capitalize upon close proximity to the La Brea, Farmdale, La Cienega and Culver City stations along the Mid-City Exposition Light Rail Transit Corridor (Expo Line).
    - This Project would redevelop an existing developed site and is located in an existing, established commercial node near the Metro E Line Culver City Station. The Project would also enhance pedestrian circulation and promote an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station. The infill nature of the Project in a walkable and developing city center environment would also help support this goal.
- **3.I.** To encourage the creation of pedestrian-friendly, multi-modal transit villages where jobs, housing, goods and services, as well as access to open space, are all located within walking distance of the station area.
    - This Project supports this program as it is located in an existing, established commercial node near the Metro E Line Culver City Station. Existing transit options in close proximity to the Project Site would allow for pedestrian and bicycle access to public transit.
- **3.J.** To improve the quality of life and the built environment by reducing the necessity for automobile dependence through better pedestrian orientation and conservation of prevailing neighborhood character.
    - The Project would support this policy by introducing development that is conducive to walking, biking, and taking transit. The Project would introduce new bicycle parking and additionally would enhance pedestrian rights-of-way by introducing increased sidewalk and parkway widths, and enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. Existing transit options in close proximity to the Project Site would allow for pedestrian and bicycle access to public transit.
- **3.K.** To improve the quality of life for all those who live, work, and recreate in the Community Plan Area by promoting safe pedestrian activity, bicycle use, and better vehicular accessibility through pedestrian orientation of structures, enhanced streetscapes and urban design, as well as conservation of the neighborhood character.
    - The Project would support this program by introducing development that is conducive to walking, biking, and taking transit. The Project would introduce new bicycle parking and additionally would enhance pedestrian rights-of-way by introducing increased sidewalk and parkway widths, and enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard. Existing transit options in close proximity to the Project Site would allow for pedestrian and bicycle access to public transit.
- **3.M.** To promote context sensitive pedestrian-oriented and transit-oriented projects, especially on greyfield and brownfield sites and other underutilized major intersection sites.
    - The Project would support this program by enhancing pedestrian circulation and promoting an active streetscape with connections to Helms Bakery, Ivy Station, and the Metro E Line Culver City Station, through increased sidewalk and parkway widths, enhanced parkway landscape and street trees along National Boulevard and Venice Boulevard.

- **3.N.** To encourage new infill development that promotes and enhances existing neighborhood character and is not dominated by excessive automobile orientation.
    - The Project would reduce vehicle trips and vehicle miles traveled by providing employment options for a growing neighborhood residential population and creating a work destination that is easily accessible via public transportation. This Project would also reduce vehicle trips and vehicle miles traveled by implementing a voluntary TDM Program to reduce single-occupancy vehicle travel to and from the Project Site. It would also reduce vehicle trips and vehicle miles traveled due to the infill nature of the Project in a walkable and developing city center environment.

Detailed Responses for Substantially Increasing Hazards Due to A Geometric Design Feature or Incompatible Use

Adapted from Section 2.4 in Transportation Analysis Guidelines, LADOT, July 2020

Impacts regarding the potential increase of hazards due to a geometric design feature generally relate to the design of access points to and from the Project site, and may include safety, operational, or capacity impacts. Impacts can be related to vehicle/vehicle, vehicle/bicycle, or vehicle/pedestrian conflicts as well as to operational delays caused by vehicles slowing and/or queuing to access a Project site. These conflicts may be created by the driveway configuration or through the placement of project driveway(s) in areas of inadequate visibility, adjacent to bicycle or pedestrian facilities, or too close to busy or congested intersections. These impacts are typically evaluated for permanent conditions after project completion but can also be evaluated for temporary conditions during project construction. If the project requires a discretionary action, and the answer is "yes" to either of the following questions, further analysis will be required to assess whether the project would result in impacts due to geometric design hazards or incompatible uses:

Screening Criteria

Table E-1: Geometric Design Feature Screening

Screening Criteria	Assessment
Is the project proposing new driveways, or introducing new vehicle access to the property from the public right-of-way?	No, vehicular access to the new below-grade parking, as well as loading docks and trash areas, would be provided via three existing driveways: one on National Boulevard (in Culver City) serving the building on the Culver City Parcel, and one on Venice Boulevard serving the building on the Los Angeles Parcel. Driveways would provide right in/right out access. A third driveway from Washington Boulevard would provide ingress only (right in only) to the Culver City and Los Angeles parcels.
Is the project proposing to make any voluntary or required modifications to the public right-of-way (i.e., street dedications, reconfigurations of curb line, etc.)?	Yes, the Project is required to make a 14 feet at grade and a 0-foot dedication below grade along the portion of National Boulevard within the City of Los Angeles.

Assessing Project Impacts

Project access points, internal circulation, and parking access were reviewed to assess vehicle, bicycle, and pedestrian safety impacts from an operational and safety perspective (e.g., turning radii, driveway queuing, and line of sight for turns into and out of project driveway[s]) in the context of Threshold T-3:

Threshold T-3: Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Operational and safety issues related to the potential for vehicle/pedestrian and vehicle/bicycle conflicts and the severity of consequences that could result were considered for locations where project driveways would cross pedestrian facilities or bicycle facilities (bike lanes or bike paths). Preliminary project access plans were reviewed in light of commonly accepted traffic engineering design standards (Section 321 of LADOT's Manual of Policies and Procedures, which provides guidance on driveway design) to ascertain whether any deficiencies are apparent in the site access plans which would be considered significant. The determination of significance considered the following factors:

Table E-2: Geometric Design Feature Evaluation

Evaluation Criteria	Assessment
The relative amount of pedestrian activity at project access points.	The Project site is in a mixed-use area with residential and commercial development. Pedestrian access would be provided from entrances located on the perimeter of the Project Site from National Boulevard and Venice Boulevard. The Project would replace development on the Project Site with a net increase of office uses, which would increase the on-site population and associated vehicular, bicycle, and pedestrian traffic, as well as transit demand. The Project would maintain or increase the existing sidewalk widths along all adjacent streets and contribute to improving walkability with enhancements to the Project site, such new trees, shrubs, and large planters.
Design features/physical configurations that affect the visibility of pedestrians and bicyclists to drivers entering and exiting the site, and the visibility of cars to pedestrians and bicyclists.	Pedestrian access would be provided from entrances located on the perimeter of the Project Site from National Boulevard and Venice Boulevard. The Project's access locations would be designed to the City standards and would provide adequate sight distance, sidewalks, crosswalks, and pedestrian movement controls that meet the City's requirements to protect pedestrian safety. All roadways and driveways would intersect at right angles. Street tree placement and the location of other potential impediments to driver and pedestrian visibility would be considered to maintain safe conditions near the Project driveways. Pedestrian entrances separated from vehicular driveways would provide access from the adjacent streets, parking facilities, and transit stops.
The type of bicycle facilities the project driveway(s) crosses and the relative level of utilization.	There is a Class II bike lane on Venice Boulevard, which is part of the Bicycle Enhanced Network. According to the Culver City Bicycle & Pedestrian Action Plan, class IV separated bikeways are recommended for implementation along Venice Boulevard fronting the Project site. The Project would not preclude the construction of a Class IV bikeway because it makes use of an existing driveway curb cut which the bikeway would need to accommodate. Bikeway design should follow best practices for geometric design, signing and striping to alert all road users of the mixing zone and potential for conflict.
The physical conditions of the site and surrounding area, such as curves, slopes, walks, landscaping, or other barriers, that could result in vehicle/pedestrian, vehicle/bicycle, or vehicle/vehicle impacts.	The streets adjacent to the Project site are flat and do not curve. The Project would locate driveways at right angles to maximize visibility of and for all users at driveways once vehicles have exited the subterranean parking garage.

The project location, or project-related changes to the public right-of-way, relative to proximity to the High Injury Network or a Safe Routes to School program area.	Venice Boulevard is on the City's High Injury Network. The Project proposes a driveway adjacent to an existing driveway along Venice Boulevard. The existing driveway would be widened to accommodate the proposed driveway and would therefore not create any additional conflict points between vehicles, pedestrians, and bicyclists traveling on Venice Boulevard and would not preclude the City from implementing changes associated with Vision Zero. The Project is not located in a Safe Routes to School program area.
Any other conditions, including the approximate location of incompatible uses that would substantially increase a transportation hazard.	The Project is in a mixed-use area and proposes development that is consistent with the surrounding area. The Project's multimodal amenities and location of driveways would not substantially increase transportation hazards.

Cumulative Impacts

There are no nearby related projects with access points proposed along the same block(s) as the proposed Project. Accordingly, no significant cumulative impacts are anticipated to which both the Project and other nearby related projects would substantially increase hazards due to a geometric design feature or incompatible use.

Appendix C: Freeway Analysis Worksheets

EXISTING - FREEWAY ANALYSIS

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	138	111	155	185	62	1191	1432
v/c Ratio	0.74	0.39	0.48	0.65	0.35	0.50	0.62
Control Delay	56.0	29.3	36.4	35.3	14.2	7.9	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	29.3	36.4	35.3	14.2	7.9	9.6
Queue Length 50th (ft)	75	47	80	75	12	140	192
Queue Length 95th (ft)	84	58	87	83	53	246	344
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	339	497	580	483	179	2399	2294
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.22	0.27	0.38	0.35	0.50	0.62

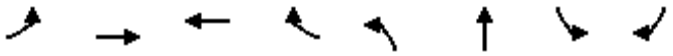
Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	76	652	2029	333	729	92	75
v/c Ratio	1.29	0.27	0.84	0.42	0.79	0.33	0.37
Control Delay	242.9	19.1	31.4	11.3	46.1	54.9	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	242.9	19.1	31.4	11.3	46.1	54.9	15.2
Queue Length 50th (ft)	~74	104	481	67	274	35	0
Queue Length 95th (ft)	#147	152	#679	160	316	61	42
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	2414	2414	798	1135	638	360
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.27	0.84	0.42	0.64	0.14	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	30	271	1012	738	92	110	141	61
v/c Ratio	0.15	0.15	0.55	0.60	0.35	0.39	0.35	0.22
Control Delay	17.7	12.9	17.6	3.0	34.7	29.3	38.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	12.9	17.6	3.0	34.7	29.3	38.4	4.9
Queue Length 50th (ft)	7	34	165	0	51	50	39	0
Queue Length 95th (ft)	36	87	#390	50	76	78	65	16
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	202	1831	1831	1249	547	562	472	300
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.55	0.59	0.17	0.20	0.30	0.20

Intersection Summary

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

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	97	66	514	955	23	952	1510
v/c Ratio	0.73	0.13	0.87	1.80	0.29	0.52	0.84
Control Delay	60.3	17.1	45.8	387.1	22.2	14.7	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.3	17.1	45.8	387.1	22.2	14.7	22.9
Queue Length 50th (ft)	49	19	278	~817	6	165	343
Queue Length 95th (ft)	#75	32	264	#680	28	216	442
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	133	525	589	532	83	1885	1862
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.13	0.87	1.80	0.28	0.51	0.81

Intersection Summary

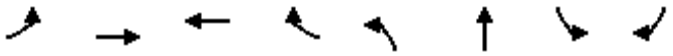
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	62	1342	1159	138	1078	430	212
v/c Ratio	0.81	0.80	0.69	0.24	0.88	0.89	0.52
Control Delay	100.2	40.4	36.9	6.6	44.8	71.3	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.2	40.4	36.9	6.6	44.8	71.3	11.2
Queue Length 50th (ft)	44	349	287	4	395	171	0
Queue Length 95th (ft)	#134	410	341	49	487	#264	71
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	77	1684	1684	580	1283	486	405
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.80	0.69	0.24	0.84	0.88	0.52

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	10	1015	495	329	292	509	357	124
v/c Ratio	0.04	0.85	0.41	0.37	0.54	0.94	0.78	0.39
Control Delay	20.6	35.4	23.8	2.5	29.0	55.2	50.2	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	35.4	23.8	2.5	29.0	55.2	50.2	10.7
Queue Length 50th (ft)	4	281	112	0	140	278	102	0
Queue Length 95th (ft)	15	#394	157	37	224	#488	#161	48
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	254	1200	1200	905	547	553	472	324
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.85	0.41	0.36	0.53	0.92	0.76	0.38

Intersection Summary

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

EXISTING PLUS PROJECT – FREEWAY ANALYSIS

17: S Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp

05/31/2022

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	138	111	165	185	62	1198	1476
v/c Ratio	0.76	0.39	0.51	0.64	0.37	0.50	0.64
Control Delay	58.6	29.2	37.1	34.9	15.9	8.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	29.2	37.1	34.9	15.9	8.0	10.0
Queue Length 50th (ft)	75	47	85	75	12	142	205
Queue Length 95th (ft)	84	57	91	82	58	252	366
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	326	497	578	483	166	2393	2291
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.22	0.29	0.38	0.37	0.50	0.64

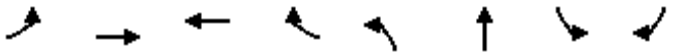
Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	76	655	2052	333	767	92	75
v/c Ratio	1.29	0.28	0.87	0.42	0.80	0.33	0.37
Control Delay	243.2	19.7	33.4	11.7	46.3	54.9	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	243.2	19.7	33.4	11.7	46.3	54.9	15.2
Queue Length 50th (ft)	~74	108	502	70	287	35	0
Queue Length 95th (ft)	#146	153	#695	162	336	61	42
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	2370	2370	785	1134	638	360
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.28	0.87	0.42	0.68	0.14	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	30	273	1024	738	117	116	141	61
v/c Ratio	0.16	0.15	0.57	0.60	0.42	0.39	0.35	0.22
Control Delay	18.4	13.3	18.3	3.1	35.8	29.6	38.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	13.3	18.3	3.1	35.8	29.6	38.4	4.9
Queue Length 50th (ft)	8	35	176	0	65	54	39	0
Queue Length 95th (ft)	37	87	#397	50	93	83	65	16
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	192	1801	1801	1242	547	561	472	300
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.15	0.57	0.59	0.21	0.21	0.30	0.20

Intersection Summary

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

Queues
17: S Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp

05/31/2022

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	97	66	516	955	23	997	1518
v/c Ratio	0.73	0.13	0.88	1.82	0.29	0.55	0.84
Control Delay	61.4	17.1	46.4	397.2	22.1	15.0	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	17.1	46.4	397.2	22.1	15.0	23.0
Queue Length 50th (ft)	49	19	279	~824	6	176	345
Queue Length 95th (ft)	#79	32	264	#687	28	230	445
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	132	524	588	526	83	1885	1862
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.13	0.88	1.82	0.28	0.53	0.82

Intersection Summary

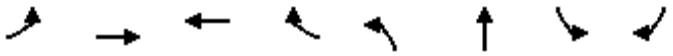
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	62	1365	1163	138	1084	430	212
v/c Ratio	0.82	0.81	0.69	0.24	0.88	0.89	0.52
Control Delay	102.9	41.0	37.0	6.6	45.0	71.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.9	41.0	37.0	6.6	45.0	71.6	11.2
Queue Length 50th (ft)	44	357	288	4	398	171	0
Queue Length 95th (ft)	#134	419	342	49	491	#264	71
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	76	1682	1682	579	1283	485	404
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.81	0.69	0.24	0.84	0.89	0.52

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	10	1026	497	329	297	509	357	124
v/c Ratio	0.04	0.85	0.41	0.37	0.55	0.94	0.78	0.39
Control Delay	20.6	36.1	23.8	2.5	29.2	55.5	50.2	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	36.1	23.8	2.5	29.2	55.5	50.2	10.7
Queue Length 50th (ft)	4	285	113	0	143	278	102	0
Queue Length 95th (ft)	15	#402	157	37	228	#489	#161	48
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	253	1200	1200	905	547	552	472	324
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.85	0.41	0.36	0.54	0.92	0.76	0.38

Intersection Summary

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

FUTURE BASE - FREEWAY ANALYSIS

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	143	114	265	191	65	1270	1594
v/c Ratio	0.88	0.33	0.68	0.56	0.57	0.57	0.74
Control Delay	76.9	24.8	39.4	29.8	37.3	10.9	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.9	24.8	39.4	29.8	37.3	10.9	14.7
Queue Length 50th (ft)	79	46	139	78	18	181	276
Queue Length 95th (ft)	87	53	129	82	#102	325	501
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	237	497	568	478	114	2244	2152
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.23	0.47	0.40	0.57	0.57	0.74

Intersection Summary

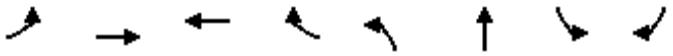
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	78	704	2177	343	819	96	77
v/c Ratio	1.32	0.31	0.95	0.45	0.82	0.34	0.38
Control Delay	253.8	21.0	41.2	13.1	46.1	55.1	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	253.8	21.0	41.2	13.1	46.1	55.1	15.7
Queue Length 50th (ft)	~78	122	581	83	304	36	0
Queue Length 95th (ft)	#147	166	#770	176	364	64	44
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	2301	2301	765	1131	638	360
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.31	0.95	0.45	0.72	0.15	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	207	308	1136	762	155	155	146	238
v/c Ratio	1.43	0.18	0.65	0.62	0.51	0.50	0.35	0.59
Control Delay	252.5	14.3	21.0	3.3	37.4	33.7	38.1	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	252.5	14.3	21.0	3.3	37.4	33.7	38.1	11.7
Queue Length 50th (ft)	~156	44	224	0	87	78	39	0
Queue Length 95th (ft)	#277	98	#471	50	120	113	67	65
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	145	1739	1739	1237	547	558	472	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.43	0.18	0.65	0.62	0.28	0.28	0.31	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	100	68	604	985	24	1087	1629
v/c Ratio	1.25	0.13	1.06	1.96	0.30	0.59	0.89
Control Delay	215.2	17.3	85.7	461.6	23.0	15.2	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	215.2	17.3	85.7	461.6	23.0	15.2	25.4
Queue Length 50th (ft)	~73	20	~389	~872	7	200	394
Queue Length 95th (ft)	#112	33	#332	#727	30	259	510
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	80	508	570	502	81	1885	1862
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.25	0.13	1.06	1.96	0.30	0.58	0.87

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

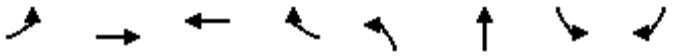
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	64	1463	1248	142	1133	445	218
v/c Ratio	1.08	0.89	0.76	0.25	0.90	0.93	0.54
Control Delay	182.9	45.6	39.2	7.9	46.4	78.2	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.9	45.6	39.2	7.9	46.4	78.2	11.3
Queue Length 50th (ft)	~56	394	316	9	425	178	0
Queue Length 95th (ft)	#149	#462	373	55	#528	#278	72
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	1651	1651	567	1283	478	407
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.89	0.76	0.25	0.88	0.93	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	208	1138	554	340	348	530	368	326
v/c Ratio	0.95	0.97	0.47	0.38	0.63	0.96	0.80	0.90
Control Delay	82.2	51.2	25.0	2.6	31.3	59.9	51.6	46.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.2	51.2	25.0	2.6	31.3	59.9	51.6	46.1
Queue Length 50th (ft)	114	332	128	0	173	301	105	85
Queue Length 95th (ft)	#254	#475	177	37	273	#523	#169	#241
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	218	1168	1168	900	551	552	472	368
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.97	0.47	0.38	0.63	0.96	0.78	0.89

Intersection Summary

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

FUTURE PLUS PROJECT – FREEWAY ANALYSIS

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	143	114	276	191	65	1276	1638
v/c Ratio	0.89	0.32	0.69	0.55	0.63	0.57	0.77
Control Delay	79.9	24.5	39.7	29.2	46.6	11.2	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.9	24.5	39.7	29.2	46.6	11.2	15.7
Queue Length 50th (ft)	79	46	145	78	19	186	296
Queue Length 95th (ft)	87	53	134	81	#108	329	#561
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	228	497	568	478	103	2228	2141
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.23	0.49	0.40	0.63	0.57	0.77

Intersection Summary

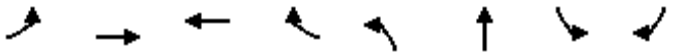
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	78	708	2200	343	857	96	77
v/c Ratio	1.30	0.31	0.97	0.45	0.83	0.34	0.38
Control Delay	250.4	21.5	46.1	13.6	46.4	55.1	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	250.4	21.5	46.1	13.6	46.4	55.1	15.7
Queue Length 50th (ft)	~78	125	605	86	318	36	0
Queue Length 95th (ft)	#145	167	#784	178	386	64	44
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	60	2260	2260	754	1131	638	360
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.30	0.31	0.97	0.45	0.76	0.15	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	207	310	1148	762	171	169	146	238
v/c Ratio	1.51	0.18	0.67	0.63	0.55	0.52	0.35	0.61
Control Delay	289.2	14.6	21.8	3.4	37.8	34.4	38.1	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	289.2	14.6	21.8	3.4	37.8	34.4	38.1	13.8
Queue Length 50th (ft)	~162	46	233	0	95	87	39	8
Queue Length 95th (ft)	#282	98	#479	50	131	124	67	76
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	137	1714	1714	1232	547	557	472	409
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.51	0.18	0.67	0.62	0.31	0.30	0.31	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	100	68	606	985	24	1132	1637
v/c Ratio	1.25	0.13	1.07	1.98	0.30	0.61	0.89
Control Delay	216.4	17.3	87.2	468.3	23.0	15.6	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	216.4	17.3	87.2	468.3	23.0	15.6	25.7
Queue Length 50th (ft)	~73	20	~391	~877	7	212	398
Queue Length 95th (ft)	#112	33	#334	#732	30	275	515
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	80	507	569	498	81	1885	1862
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.25	0.13	1.07	1.98	0.30	0.60	0.88

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

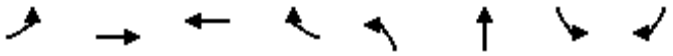
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	64	1486	1252	142	1139	445	218
v/c Ratio	1.08	0.90	0.76	0.25	0.91	0.93	0.54
Control Delay	184.1	46.8	39.3	7.9	46.9	78.2	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	184.1	46.8	39.3	7.9	46.9	78.2	11.3
Queue Length 50th (ft)	~56	403	317	9	429	178	0
Queue Length 95th (ft)	#149	#482	375	55	#540	#278	72
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	1649	1649	566	1282	478	407
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.90	0.76	0.25	0.89	0.93	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	208	1149	557	340	353	530	368	326
v/c Ratio	0.96	0.98	0.48	0.38	0.64	0.96	0.80	0.90
Control Delay	83.4	53.2	25.0	2.6	31.6	60.0	51.6	47.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.4	53.2	25.0	2.6	31.6	60.0	51.6	47.3
Queue Length 50th (ft)	114	336	129	0	176	301	105	87
Queue Length 95th (ft)	#255	#483	178	37	277	#524	#169	#245
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	217	1168	1168	900	551	552	472	366
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.98	0.48	0.38	0.64	0.96	0.78	0.89

Intersection Summary

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

HORIZON YEAR - FREEWAY ANALYSIS

17: S Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp

05/31/2022

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	123	276	206	69	1363	1706
v/c Ratio	0.92	0.34	0.67	0.59	0.81	0.62	0.81
Control Delay	83.1	24.7	38.1	31.6	80.1	12.3	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.1	24.7	38.1	31.6	80.1	12.3	17.6
Queue Length 50th (ft)	85	49	142	89	26	217	337
Queue Length 95th (ft)	93	57	134	92	#83	366	#639
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	233	497	569	473	85	2206	2116
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.25	0.49	0.44	0.81	0.62	0.81

Intersection Summary

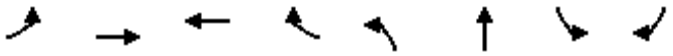
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	85	757	2338	370	877	102	84
v/c Ratio	1.44	0.34	1.05	0.49	0.84	0.36	0.40
Control Delay	301.5	22.2	64.8	14.9	46.5	55.3	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	301.5	22.2	64.8	14.9	46.5	55.3	16.7
Queue Length 50th (ft)	~90	137	~730	102	326	39	0
Queue Length 95th (ft)	#160	180	#868	202	397	67	49
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	2237	2237	749	1133	638	362
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.44	0.34	1.05	0.49	0.77	0.16	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	209	329	1216	821	163	161	157	242
v/c Ratio	1.77	0.19	0.71	0.67	0.53	0.50	0.37	0.59
Control Delay	401.6	14.7	22.8	4.2	37.6	33.5	38.0	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	401.6	14.7	22.8	4.2	37.6	33.5	38.0	11.5
Queue Length 50th (ft)	~177	50	260	7	91	81	42	0
Queue Length 95th (ft)	#300	104	#523	70	125	116	71	66
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	118	1714	1714	1237	547	558	472	425
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.77	0.19	0.71	0.66	0.30	0.29	0.33	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	108	74	646	1061	25	1162	1748
v/c Ratio	1.35	0.15	1.16	2.18	0.31	0.62	0.94
Control Delay	248.5	17.7	119.0	556.9	24.0	15.6	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	248.5	17.7	119.0	556.9	24.0	15.6	30.6
Queue Length 50th (ft)	~81	22	~439	~974	7	221	455
Queue Length 95th (ft)	#120	35	#385	#806	31	286	#651
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	80	499	559	487	80	1885	1863
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.15	1.16	2.18	0.31	0.62	0.94

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

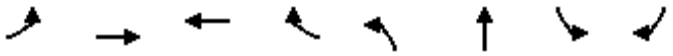
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	68	1568	1339	153	1219	478	236
v/c Ratio	1.13	0.97	0.83	0.27	0.95	1.00	0.56
Control Delay	197.3	55.5	42.3	8.9	52.8	93.7	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	197.3	55.5	42.3	8.9	52.8	93.7	11.4
Queue Length 50th (ft)	~61	435	348	14	476	~196	0
Queue Length 95th (ft)	#158	#544	409	63	#627	#308	75
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	60	1622	1622	560	1283	476	422
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.97	0.83	0.27	0.95	1.00	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	209	1218	593	366	371	570	397	336
v/c Ratio	1.04	1.04	0.51	0.41	0.68	1.05	0.84	0.95
Control Delay	107.1	69.2	25.5	3.7	33.1	81.8	55.0	60.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.1	69.2	25.5	3.7	33.1	81.8	55.0	60.3
Queue Length 50th (ft)	~129	~398	140	14	188	~369	114	105
Queue Length 95th (ft)	#266	#527	190	55	295	#583	#189	#275
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	201	1166	1166	885	547	545	472	352
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	1.04	0.51	0.41	0.68	1.05	0.84	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

HORIZON YEAR PLUS PROJECT – FREEWAY ANALYSIS

17: S Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp

05/31/2022

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	123	286	206	69	1370	1750
v/c Ratio	0.93	0.33	0.69	0.58	0.87	0.62	0.83
Control Delay	87.0	24.4	38.5	31.2	97.7	12.5	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.0	24.4	38.5	31.2	97.7	12.5	18.8
Queue Length 50th (ft)	85	49	147	89	29	223	363
Queue Length 95th (ft)	95	57	139	92	#89	369	#667
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	225	497	568	473	79	2192	2107
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.25	0.50	0.44	0.87	0.63	0.83

Intersection Summary

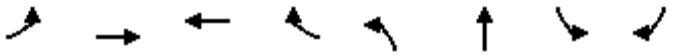
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	85	760	2361	370	915	102	84
v/c Ratio	1.44	0.35	1.07	0.50	0.86	0.36	0.40
Control Delay	299.6	22.7	74.7	15.4	47.3	55.3	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	299.6	22.7	74.7	15.4	47.3	55.3	16.7
Queue Length 50th (ft)	~91	142	~766	107	337	39	0
Queue Length 95th (ft)	#159	180	#881	204	420	67	49
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	2202	2202	739	1130	638	362
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.44	0.35	1.07	0.50	0.81	0.16	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	209	332	1228	821	176	179	157	242
v/c Ratio	1.88	0.20	0.72	0.67	0.56	0.55	0.37	0.63
Control Delay	452.6	15.0	23.5	4.2	38.0	35.2	38.0	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	452.6	15.0	23.5	4.2	38.0	35.2	38.0	15.3
Queue Length 50th (ft)	~182	51	270	7	97	92	42	14
Queue Length 95th (ft)	#304	105	#531	70	134	130	71	85
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	111	1694	1694	1233	547	557	472	402
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.88	0.20	0.72	0.67	0.32	0.32	0.33	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	108	74	647	1061	25	1208	1756
v/c Ratio	1.35	0.15	1.16	2.19	0.31	0.64	0.94
Control Delay	249.8	17.7	120.1	564.2	24.0	16.0	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	249.8	17.7	120.1	564.2	24.0	16.0	31.1
Queue Length 50th (ft)	~81	22	~440	~978	7	235	459
Queue Length 95th (ft)	#120	35	#386	#810	31	303	#656
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	80	498	558	484	80	1885	1863
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.15	1.16	2.19	0.31	0.64	0.94

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	68	1591	1343	153	1225	478	236
v/c Ratio	1.13	0.98	0.83	0.27	0.96	1.01	0.56
Control Delay	197.3	58.3	42.4	9.0	53.3	95.1	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	197.3	58.3	42.4	9.0	53.3	95.1	11.4
Queue Length 50th (ft)	~61	445	350	15	480	~196	0
Queue Length 95th (ft)	#158	#557	411	64	#633	#308	75
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	60	1622	1622	559	1282	473	420
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.98	0.83	0.27	0.96	1.01	0.56

Intersection Summary

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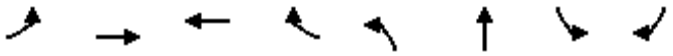
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	209	1229	596	366	375	571	397	336
v/c Ratio	1.04	1.05	0.51	0.41	0.69	1.05	0.84	0.96
Control Delay	108.7	72.2	25.6	3.7	33.4	82.3	55.0	62.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.7	72.2	25.6	3.7	33.4	82.3	55.0	62.6
Queue Length 50th (ft)	~130	~406	140	14	191	~370	114	107
Queue Length 95th (ft)	#266	#535	192	55	298	#585	#189	#278
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	200	1166	1166	885	547	545	472	349
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	1.05	0.51	0.41	0.69	1.05	0.84	0.96

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Appendix D: Count Sheets

Prepared by National Data & Surveying Services

Venice Blvd & Cadillac Ave/ I-10 WB off Ramp

Peak Hour Turning Movement Count

ID: 22-020073-001
City: Los Angeles

Day: Thursday
Date: 2/17/2022

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NONE	NONE
04:15 PM - 05:15 PM	3:00 PM - 06:00 PM

SOUTHBOUND (Venice Blvd)

AM	306	1867	0	0	718	AM
NOON	0	0	0	0	0	NOON
PM	127	1066	0	0	1656	PM
	0	4	0	0		

EASTBOUND (Cadillac Ave/ I-10 WB off Ramp)

AM	NOON	PM	
847	0	992	
0	0	0	0
85	0	396	2
0	0	0	0
69	0	195	1
AM	NOON	PM	

WESTBOUND (Cadillac Ave/ I-10 WB off Ramp)

PM	NOON	AM	
25	0	33	0.5
833	0	495	1
134	0	143	0.5
0	0	0	0
0	0	0	
PM	NOON	AM	

NORTHBOUND (Venice Blvd)

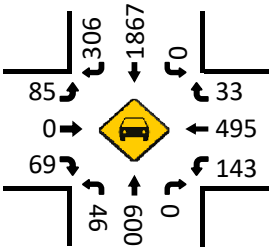
PM	1420	25	32	1235	0	PM
NOON	0	0	0	0	0	NOON
AM	2103	24	46	600	0	AM
		0	1	4	0	

CONTROL

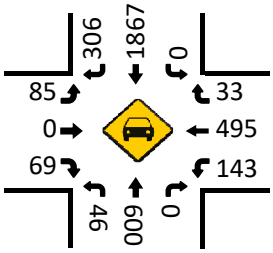
Signalized

TEV	3668 AM	0 NOON	4068 PM
PHF	0.99		0.99

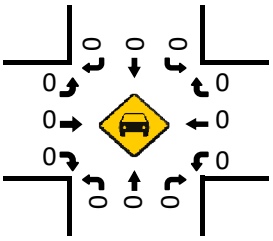
Totals (AM)



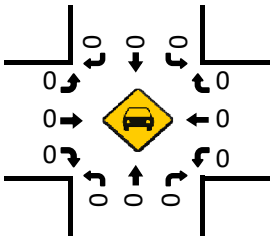
Totals (AM)



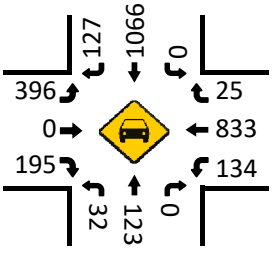
Totals (NOON)



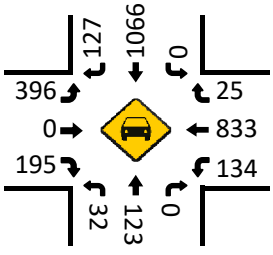
Totals (NOON)



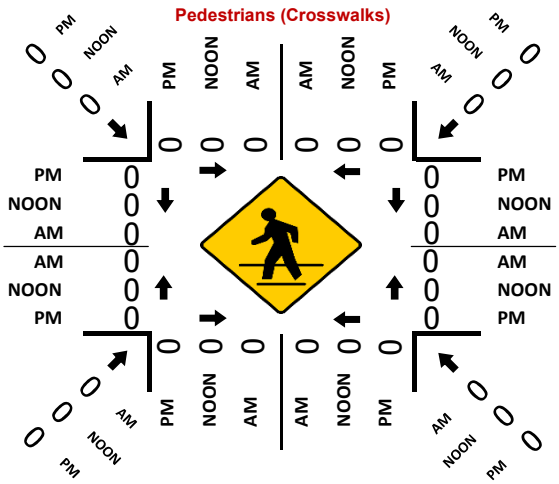
Totals (PM)



Totals (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Washington Blvd & Electric Dr/ I-10 WB off ramp

Peak Hour Turning Movement Count

ID: 22-020073-003
City: Los Angeles

Day: Thursday
Date: 2/17/2022

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	7:00 AM - 10:00 AM
NONE	NONE
04:45 PM - 05:45 PM	3:00 PM - 06:00 PM

Washington Blvd — SOUTHBOUND

AM	679	931	0	0	404	AM
NOON	0	0	0	0	0	NOON
PM	303	455	0	1	1441	PM

EASTBOUND — Electric Dr/ I-10 WB off ramp

AM	NOON	PM		
773	0	571	⇦	
0	0	0	↶	0
130	0	328	↱	2
0	0	0	→	0
56	0	114	↴	1
AM	NOON	PM		

WESTBOUND — Electric Dr/ I-10 WB off ramp

PM	NOON	AM		
178	0	25	↰	1
260	0	67	←	0.5
299	0	94	↰	1.5
0	0	0	↶	0
0	0	0	⇨	
PM	NOON	AM		

NORTHBOUND — Washington Blvd

PM	869	1	8	934	0	PM
NOON	0	0	0	0	0	NOON
AM	1082	1	27	249	0	AM

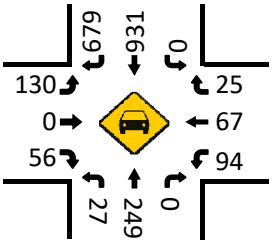
1 2 0 0 — 0 1 2 0

CONTROL

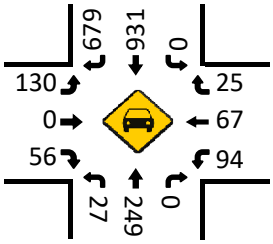
Signalized

TEV	2259 AM	0 NOON	2881 PM
PHF	0.97		0.96

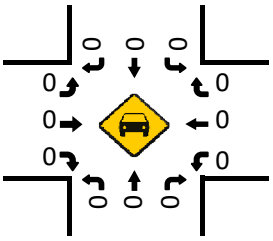
Totals (AM)



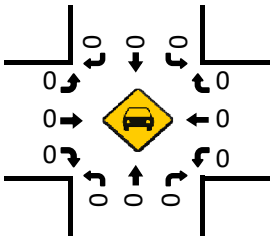
Totals (AM)



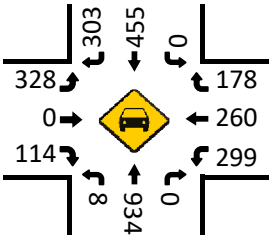
Totals (NOON)



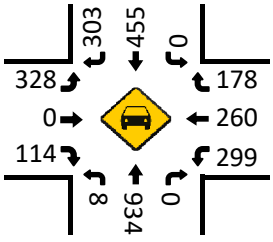
Totals (NOON)



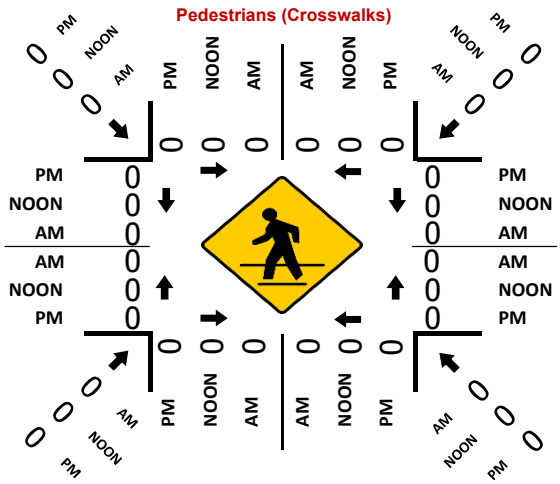
Totals (PM)



Totals (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Robertson Blvd/S Robertson Blvd/Exposition Blvd & SR 187/Venice Blvd

Peak Hour Turning Movement Count

ID: 22-020140-001
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS	COUNT PERIODS
08:15 AM - 09:15 AM	7:00 AM - 10:00 AM
NONE	NONE
05:45 PM - 06:45 PM	4:00 PM - 07:00 PM

SOUTHBOUND — Robertson Blvd/S Robertson Blvd/Exposition Blvd

AM	429	234	297	378	1220	AM
NOON	0	0	0	0	0	NOON
PM	304	182	404	150	769	PM

EASTBOUND — SR 187/Venice Blvd

AM	NOON	PM	
1906	0	1804	
0	0	0	0
327	0	189	2
1216	0	1299	3
59	0	63	0
AM	NOON	PM	

WESTBOUND — SR 187/Venice Blvd

PM	NOON	AM	
128	0	195	0
1398	0	1378	3
139	0	51	1
3	0	2	0
1926	0	1585	
PM	NOON	AM	

NORTHBOUND — Robertson Blvd/S Robertson Blvd/Exposition Blvd

PM	384	0	102	302	220	PM
NOON	0	0	0	0	0	NOON
AM	345	1	99	320	70	AM

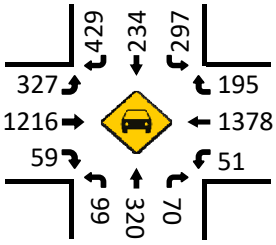
	2	0	2	0
	0	1	2	1

CONTROL

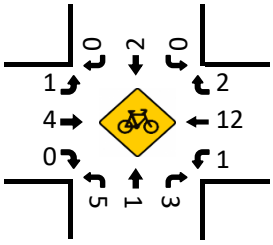
Signalized

TEV	5056	0	4883
	AM	NOON	PM
PHF	0.95		0.98

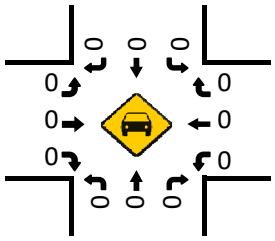
Totals (AM)



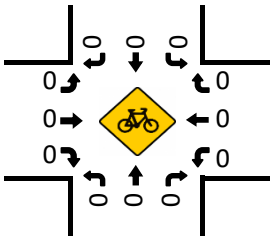
Total Bikes (AM)



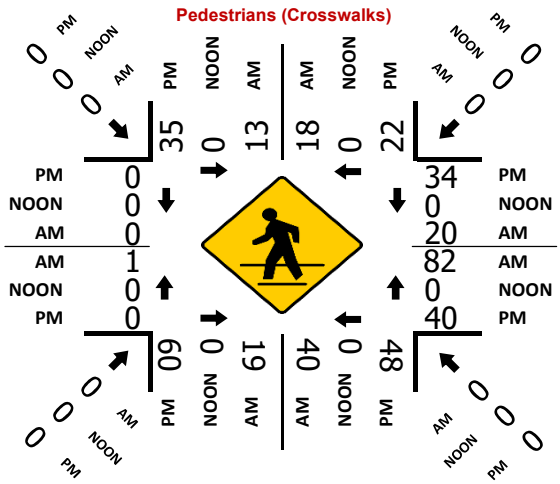
Totals (NOON)



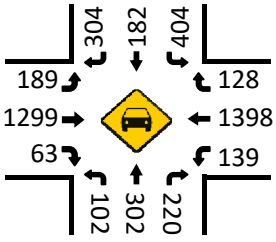
Total Bikes (NOON)



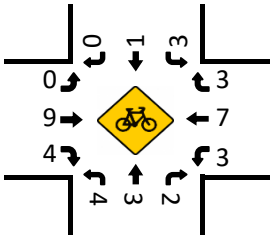
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: National Blvd & SR 187/Venice Blvd
City: Culver City
Control: Signalized

Project ID: 22-020140-002
Date: 5/12/2022

Data - Totals

NS/EW Streets:	National Blvd				National Blvd				SR 187/Venice Blvd				SR 187/Venice Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1	2	0	0	2	3	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	55	152	3	0	3	14	5	0	18	139	24	2	6	253	24	0	698
7:15 AM	81	158	6	0	10	35	13	0	18	179	29	0	8	283	27	0	847
7:30 AM	57	151	2	0	5	39	8	0	17	223	54	0	16	323	46	1	942
7:45 AM	36	159	3	0	18	71	9	0	32	215	78	0	7	300	39	3	970
8:00 AM	64	178	5	0	15	94	5	0	29	224	90	0	21	313	35	0	1073
8:15 AM	49	164	11	0	29	93	10	0	26	266	99	1	20	330	30	0	1128
8:30 AM	50	147	14	0	19	79	11	0	27	287	90	0	23	357	38	0	1142
8:45 AM	42	123	11	0	16	71	16	0	26	299	104	2	18	384	44	0	1156
9:00 AM	38	93	4	0	11	79	16	0	42	239	81	7	18	260	25	0	913
9:15 AM	35	115	7	0	12	56	11	0	31	229	73	3	14	297	31	0	914
9:30 AM	50	98	6	0	16	61	13	0	24	214	80	3	8	272	23	0	868
9:45 AM	82	102	9	0	13	33	14	0	17	188	63	4	10	247	18	1	801
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	639	1640	81	0	167	725	131	0	307	2702	865	22	169	3619	380	5	11452
APPROACH %'s :	27.08%	69.49%	3.43%	0.00%	16.32%	70.87%	12.81%	0.00%	7.88%	69.35%	22.20%	0.56%	4.05%	86.72%	9.11%	0.12%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	205	612	41	0	79	337	42	0	108	1076	383	3	82	1384	147	0	4499
PEAK HR FACTOR :	0.801	0.860	0.732	0.000	0.681	0.896	0.656	0.000	0.931	0.900	0.921	0.375	0.891	0.901	0.835	0.000	0.973
	0.868				0.867				0.911				0.904				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	0	0	1	2	0	0	2	3	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	48	66	21	0	46	120	11	0	12	313	56	1	19	243	5	1	962
4:15 PM	58	78	27	0	53	121	15	0	16	323	62	2	25	288	7	1	1076
4:30 PM	52	87	26	0	46	110	11	0	20	356	74	1	17	257	8	0	1065
4:45 PM	32	68	32	0	44	133	10	0	16	323	62	2	15	336	12	0	1085
5:00 PM	42	52	62	0	56	101	7	0	9	330	72	1	28	270	12	0	1042
5:15 PM	43	91	64	0	27	109	9	0	20	262	56	1	35	320	8	2	1047
5:30 PM	51	59	50	0	16	94	15	0	13	341	79	0	33	244	5	1	1001
5:45 PM	49	64	32	0	15	86	11	0	14	416	89	3	25	290	13	1	1108
6:00 PM	32	82	27	0	25	75	10	0	11	382	85	2	34	328	11	0	1104
6:15 PM	55	66	42	0	37	134	11	0	19	363	87	4	39	316	12	0	1185
6:30 PM	43	75	37	0	28	131	8	0	15	354	76	2	32	300	11	1	1113
6:45 PM	38	77	31	0	31	130	9	0	13	414	69	1	28	246	8	2	1097
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	543	865	451	0	424	1344	127	0	178	4177	867	20	330	3438	112	9	12885
APPROACH %'s :	29.21%	46.53%	24.26%	0.00%	22.37%	70.92%	6.70%	0.00%	3.40%	79.68%	16.54%	0.38%	8.49%	88.40%	2.88%	0.23%	
PEAK HR :	05:45 PM - 06:45 PM																TOTAL
PEAK HR VOL :	179	287	138	0	105	426	40	0	59	1515	337	11	130	1234	47	2	4510
PEAK HR FACTOR :	0.814	0.875	0.821	0.000	0.709	0.795	0.909	0.000	0.776	0.910	0.947	0.688	0.833	0.941	0.904	0.500	0.951
	0.926				0.784				0.920				0.947				

Prepared by National Data & Surveying Services

Helms Ave & SR 187/Venice Blvd

Peak Hour Turning Movement Count

ID: 22-020140-003
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS		COUNT PERIODS
AM	08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NOON	NONE	NONE
PM	05:30 PM - 06:30 PM	4:00 PM - 07:00 PM

SOUTHBOUND – Helms Ave

	Right	Thru	Left	U-Turn	Departing
AM	6	1	3	1	33
NOON	0	0	0	0	0
PM	33	5	114	0	27
Bikes	0	1	0	0	

EASTBOUND – SR 187/Venice Blvd

	AM	NOON	PM	Bikes
Departing	1627	0	1338	
U-Turn	9	0	6	0
Left	19	0	16	1
Thru	1154	0	1667	3
Right	15	0	39	0

WESTBOUND – SR 187/Venice Blvd

	PM	NOON	AM	Bikes
Right	10	0	11	0
Thru	1278	0	1608	3
Left	38	0	8	1
U-Turn	75	0	6	0
Departing	1871	0	1164	

NORTHBOUND – Helms Ave

	Departing	U-Turn	Left	Thru	Right
Bikes		0	0	2	0
PM	82	0	21	1	15
NOON	0	0	0	0	0
AM	24	0	4	2	1

CONTROL

Signalized

	AM	NOON	PM
TEV	2848	0	3318
PHF	0.92		0.98

Totals (AM)

Approach	Left	Thru	Right
Southbound	3	1	6
Eastbound	19	1154	15
Westbound	8	1608	11
Northbound	4	2	1

Totals (NOON)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

Totals (PM)

Approach	Left	Thru	Right
Southbound	114	5	33
Eastbound	16	1667	39
Westbound	38	1278	10
Northbound	21	1	15

Total Bikes (AM)

Approach	Left	Thru	Right
Southbound	1	0	0
Eastbound	2	11	0
Westbound	2	22	0
Northbound	0	1	0

Total Bikes (NOON)

Approach	Left	Thru	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

Total Bikes (PM)

Approach	Left	Thru	Right
Southbound	0	1	0
Eastbound	0	19	0
Westbound	0	11	1
Northbound	0	1	0

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg, eastbound (→)	6	0	8
North leg, westbound (←)	7	0	7
West leg, southbound (↓)	11	0	5
West leg, northbound (↑)	2	0	12
East leg, southbound (↓)	9	0	4
East leg, northbound (↑)	2	0	22
South leg, eastbound (→)	10	0	14
South leg, westbound (←)	5	0	7
NW diagonal	0	0	0
NE diagonal	0	0	0
SW diagonal	0	0	0
SE diagonal	0	0	0

Prepared by National Data & Surveying Services

Cattaraugus Ave & SR 187/Venice Blvd

Peak Hour Turning Movement Count

ID: 22-020140-004
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NONE	NONE
05:30 PM - 06:30 PM	4:00 PM - 07:00 PM

SOUTHBOUND (Cattaraugus Ave)

AM	18	71	95	0	396	AM
NOON	0	0	0	0	0	NOON
PM	4	108	174	0	118	PM

EASTBOUND (SR 187/Venice Blvd)

AM	NOON	PM	
1596	0	1206	
18	0	16	0
47	0	50	1
1059	0	1697	3
17	0	63	0

WESTBOUND (SR 187/Venice Blvd)

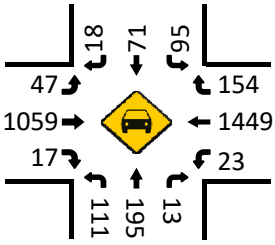
PM	NOON	AM	
36	0	154	0
1160	0	1449	3
33	0	23	1
46	0	27	0
1929	0	1194	

NORTHBOUND (Cattaraugus Ave)

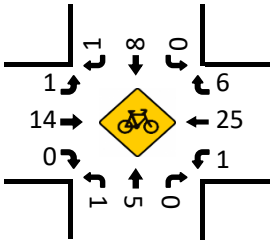
PM	204	0	26	32	12	PM
NOON	0	0	0	0	0	NOON
AM	111	0	111	195	13	AM

CONTROL			
Signalized			
TEV	3297 AM	0 NOON	3457 PM
PHF	0.97		0.96

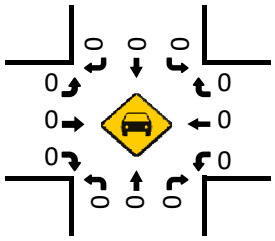
Totals (AM)



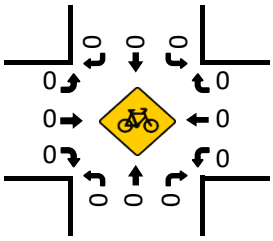
Total Bikes (AM)



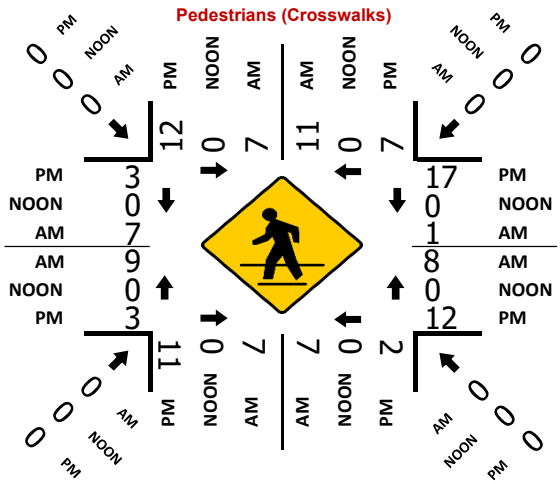
Totals (NOON)



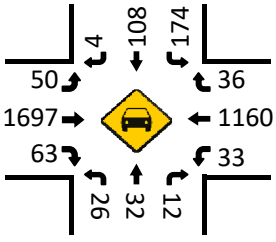
Total Bikes (NOON)



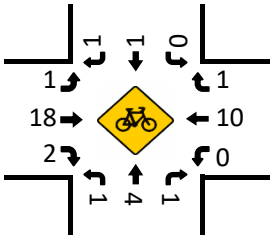
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

La Cienega Blvd & SR 187/Venice Blvd

Peak Hour Turning Movement Count

ID: 22-020140-005
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS

AM: 08:15 AM - 09:15 AM
NOON: NONE
PM: 05:45 PM - 06:45 PM

COUNT PERIODS

AM: 7:00 AM - 10:00 AM
NOON: NONE
PM: 4:00 PM - 07:00 PM

SOUTHBOUND (La Cienega Blvd)

AM	263	791	45	0	1892	AM
NOON	0	0	0	0	0	NOON
PM	358	907	120	0	1080	PM

EASTBOUND (SR 187/Venice Blvd)

AM	NOON	PM		
1566	0	1207		
0	0	0	0	
258	0	276	2	
857	0	1362	3	
112	0	105	0	

WESTBOUND (SR 187/Venice Blvd)

	PM	NOON	AM
1	11	0	43
3	784	0	1145
1	93	0	90
0	15	0	6
	1543	0	963

NORTHBOUND (La Cienega Blvd)

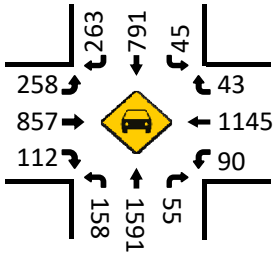
PM	1105	0	65	793	46	PM
NOON	0	0	0	0	0	NOON
AM	993	0	158	1591	55	AM

CONTROL

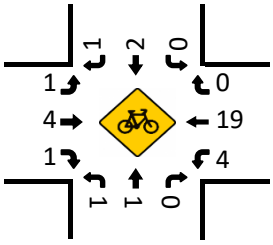
Signalized

TEV	5414	0	4935
	AM	NOON	PM
PHF	0.96		0.98

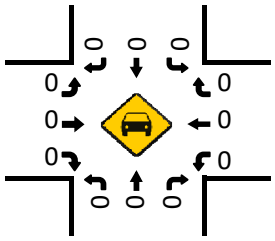
Totals (AM)



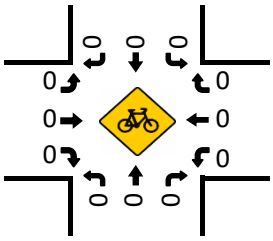
Total Bikes (AM)



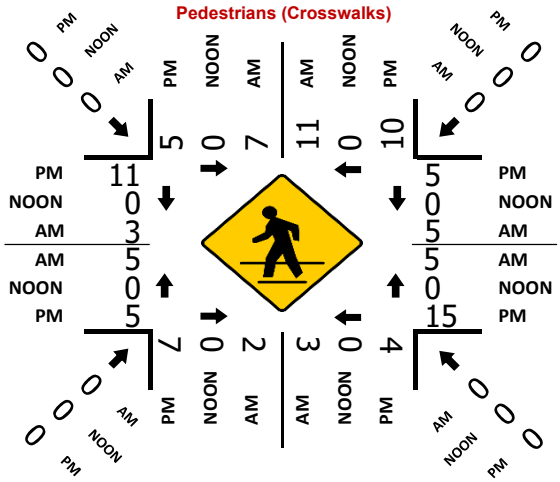
Totals (NOON)



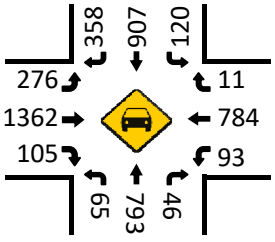
Total Bikes (NOON)



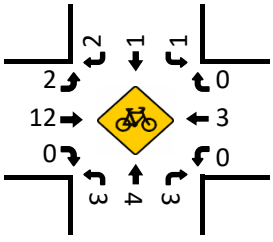
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

National Blvd & Ivy Station Dwy

Peak Hour Turning Movement Count

ID: 22-020140-006
City: Culver City

Day: Thursday
Date: 5/12/2022

	PEAK HOURS	COUNT PERIODS
AM	08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NOON	NONE	NONE
PM	06:00 PM - 07:00 PM	4:00 PM - 07:00 PM

SOUTHBOUND – National Blvd

	Right	Through	Left	U-Turn	Northbound departing
AM	33	751	22	0	849
NOON	0	0	0	0	0
PM	43	880	0	1	604
Lanes	0	2	1	0	

EASTBOUND – Ivy Station Dwy

	AM	NOON	PM	Lanes
Westbound departing	53	0	74	
U-Turn	0	0	0	0
Left	14	0	14	1
Through	0	0	0	0
Right	8	0	31	1

WESTBOUND – Ivy Station Dwy

	PM	NOON	AM	Lanes
Right	17	0	2	1
Through	0	0	0	0
Left	4	0	1	1
U-Turn	0	0	0	0
Eastbound departing	1	0	44	

NORTHBOUND – National Blvd

	Southbound departing	U-Turn	Left	Through	Right
Lanes		0	1	2	0
PM	919	4	31	572	1
NOON	0	0	0	0	0
AM	761	1	20	833	22

CONTROL

Signalized

	AM	NOON	PM
TEV	1707	0	1598
PHF	0.93		0.90

Totals (AM)

Approach	Left	Through	Right
Southbound	22	751	33
Eastbound	14	0	8
Westbound	1	0	2
Northbound	20	833	22

Totals (NOON)

Approach	Left	Through	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

Totals (PM)

Approach	Left	Through	Right
Southbound	0	880	43
Eastbound	14	0	31
Westbound	4	0	17
Northbound	31	572	1

Total Bikes (AM)

Approach	Left	Through	Right
Southbound	0	7	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	1	7	0

Total Bikes (NOON)

Approach	Left	Through	Right
Southbound	0	0	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	0	0

Total Bikes (PM)

Approach	Left	Through	Right
Southbound	0	10	0
Eastbound	0	0	0
Westbound	0	0	0
Northbound	0	5	0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North leg	Eastbound	0	0	0
North leg	Westbound	0	0	0
West leg	Southbound	11	0	21
West leg	Northbound	7	0	12
East leg	Southbound	5	0	2
East leg	Northbound	6	0	7
South leg	Eastbound	0	0	0
South leg	Westbound	0	0	0
NW diagonal		0	0	0
NE diagonal		0	0	0
SW diagonal		0	0	0
SE diagonal		0	0	0

Prepared by National Data & Surveying Services

S Robertson Blvd/Higuera St & Washington Blvd

Peak Hour Turning Movement Count

ID: 22-020140-007
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	7:00 AM - 10:00 AM
NONE	NONE
05:00 PM - 06:00 PM	4:00 PM - 07:00 PM

SOUTHBOUND (S Robertson Blvd/Higuera St)

AM	41	182	105	0	534	AM
NOON	0	0	0	0	0	NOON
PM	65	284	126	1	597	PM

EASTBOUND (Washington Blvd)

AM	NOON	PM	
500	0	304	
0	0	0	0
71	0	247	1
283	0	492	1
16	0	35	0
AM	NOON	PM	

WESTBOUND (Washington Blvd)

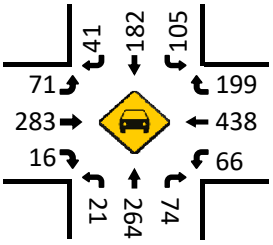
PM	NOON	AM	
148	0	199	1
222	0	438	1
56	0	66	1
0	0	0	0
677	0	462	
PM	NOON	AM	

NORTHBOUND (S Robertson Blvd/Higuera St)

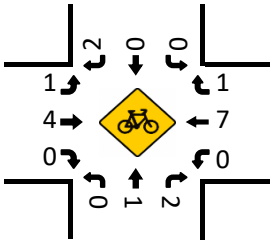
PM	375	0	17	201	59	PM
NOON	0	0	0	0	0	NOON
AM	264	0	21	264	74	AM

CONTROL			
Signalized			
TEV	1760 AM	0 NOON	1953 PM
PHF	0.98		0.96

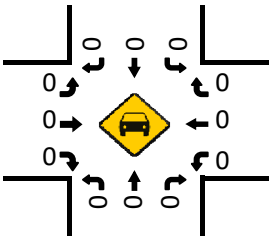
Totals (AM)



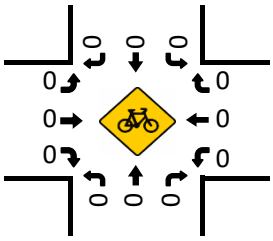
Total Bikes (AM)



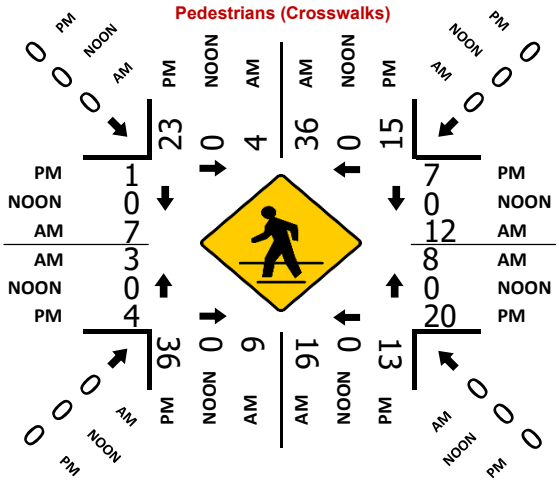
Totals (NOON)



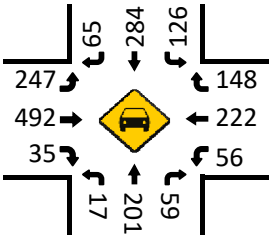
Total Bikes (NOON)



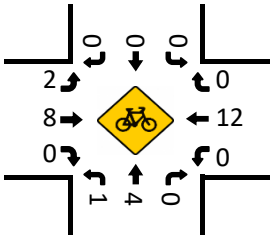
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Landmark St & Washington Blvd

Peak Hour Turning Movement Count

ID: 22-020140-008
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS

AM	08:00 AM - 09:00 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	7:00 AM - 10:00 AM
NOON	NONE
PM	4:00 PM - 07:00 PM

SOUTHBOUND (Landmark St)

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Washington Blvd)

AM	NOON	PM	
689	0	426	
0	0	0	0
0	0	0	0
348	0	603	1
133	0	78	0

WESTBOUND (Washington Blvd)

	PM	NOON	AM
0	0	0	0
1	356	0	625
1	87	0	100
0	0	0	1
	700	0	414

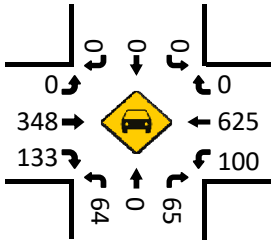
NORTHBOUND (Landmark St)

PM	165	0	70	0	97	PM
NOON	0	0	0	0	0	NOON
AM	233	0	64	0	65	AM

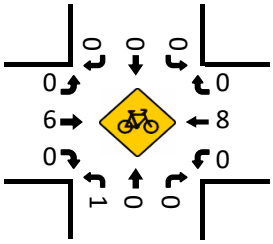
CONTROL: Signalized

TEV	1336 AM	0 NOON	1291 PM
PHF	0.94		0.95

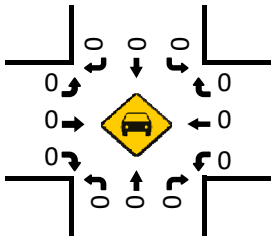
Totals (AM)



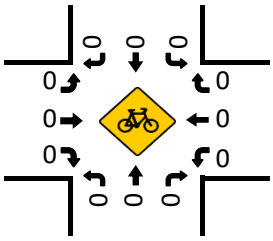
Total Bikes (AM)



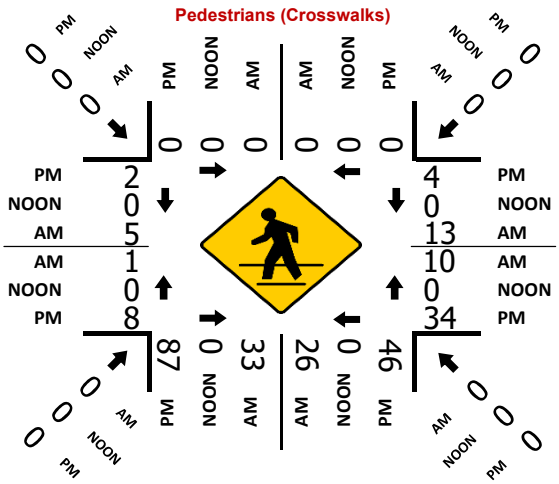
Totals (NOON)



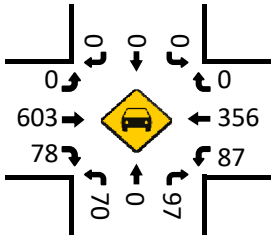
Total Bikes (NOON)



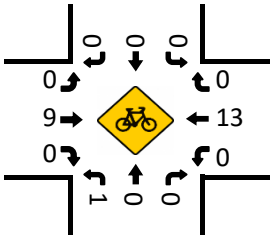
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

National Blvd & Washington Blvd

Peak Hour Turning Movement Count

ID: 22-020140-009
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	7:00 AM - 10:00 AM
NONE	NONE
05:45 PM - 06:45 PM	4:00 PM - 07:00 PM

SOUTHBOUND (National Blvd)

AM	87	586	72	0	892	AM
NOON	0	0	0	0	0	NOON
PM	102	696	88	0	615	PM

EASTBOUND (Washington Blvd)

AM	NOON	PM		
719	0	510		
0	0	1	0	
45	0	48	1	
264	0	389	1	
106	0	171	0	
AM	NOON	PM		

WESTBOUND (Washington Blvd)

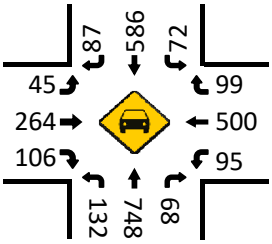
PM	NOON	AM		
116	0	99	0	
279	0	500	1	
147	0	95	1	
0	0	0	0	
729	0	404		
PM	NOON	AM		

NORTHBOUND (National Blvd)

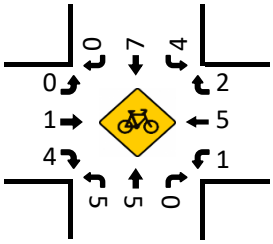
PM	1014	0	128	451	252	PM
NOON	0	0	0	0	0	NOON
AM	787	0	132	748	68	AM

CONTROL			
Signalized			
TEV	2802 AM	0 NOON	2868 PM
PHF	0.96		0.95

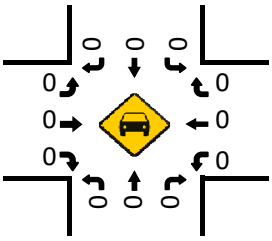
Totals (AM)



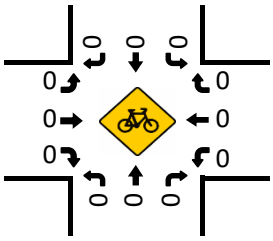
Total Bikes (AM)



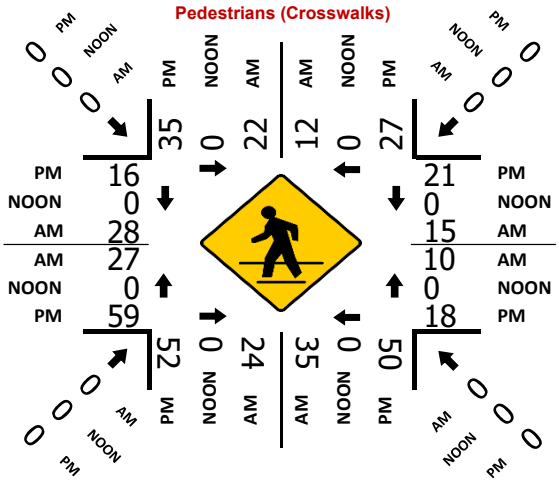
Totals (NOON)



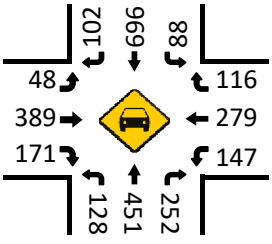
Total Bikes (NOON)



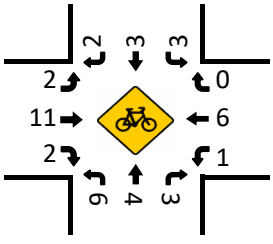
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Wesley St & Washington Blvd

Peak Hour Turning Movement Count

ID: 22-020140-010
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS	COUNT PERIODS
08:15 AM - 09:15 AM	7:00 AM - 10:00 AM
NONE	NONE
05:45 PM - 06:45 PM	4:00 PM - 07:00 PM

SOUTHBOUND (Wesley St)

	L	T	R	U	Total	
AM	9	0	0	0	87	AM
NOON	0	0	0	0	0	NOON
PM	54	0	7	0	2	PM

EASTBOUND (Washington Blvd)

	L	T	R	U	Total	
AM	1	57	348	25	696	AM
NOON	0	0	0	0	0	NOON
PM	4	0	723	17	560	PM

WESTBOUND (Washington Blvd)

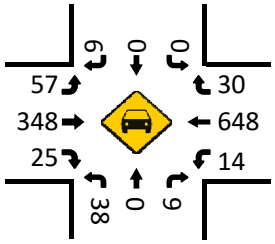
	L	T	R	U	Total	
PM	2	468	19	4	755	PM
NOON	0	0	0	0	0	NOON
AM	30	648	14	0	357	AM

NORTHBOUND (Wesley St)

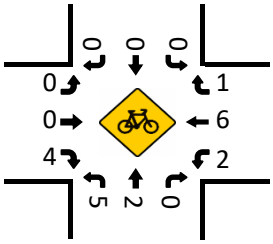
	L	T	R	U	Total	
PM	36	0	34	0	21	PM
NOON	0	0	0	0	0	NOON
AM	39	0	38	0	9	AM

CONTROL			
Signalized			
TEV	1179 AM	0 NOON	1353 PM
PHF	0.93		0.99

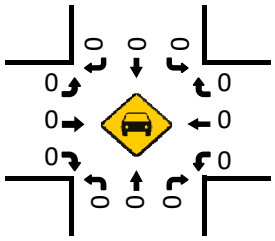
Totals (AM)



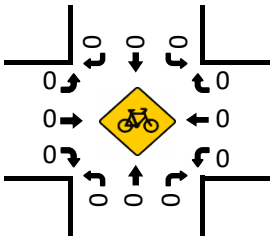
Total Bikes (AM)



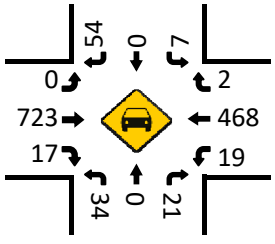
Totals (NOON)



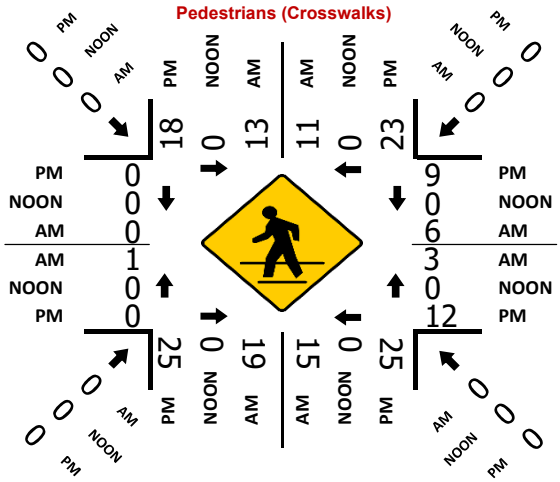
Total Bikes (NOON)



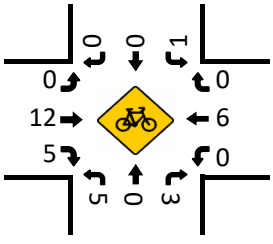
Totals (PM)



Pedestrians (Crosswalks)



Total Bikes (PM)



Prepared by National Data & Surveying Services

Helms Ave & Washington Blvd

Peak Hour Turning Movement Count

ID: 22-020140-011
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	7:00 AM - 10:00 AM
NONE	NONE
05:45 PM - 06:45 PM	4:00 PM - 07:00 PM

CONTROL: Signalized

	AM	NOON	PM
TEV	1077	0	1283
PHF	0.93		0.93

SOUTHBOUND (Helms Ave)

	Left	Thru	Right	U-Turn	
AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	0	0	0	0	PM

EASTBOUND (Washington Blvd)

	Left	Thru	Right	
AM	699	0	499	
NOON	0	0	0	0
PM	0	0	0	0
	346	0	723	1
	18	0	32	0

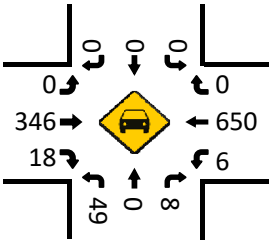
WESTBOUND (Washington Blvd)

	Left	Thru	Right	
AM	0	0	0	0
NOON	467	0	650	1
PM	16	0	6	1
	0	0	0	0
	736	0	354	

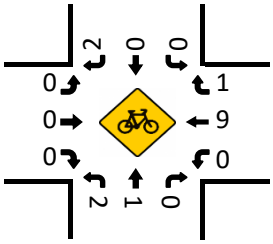
NORTHBOUND (Helms Ave)

	Left	Thru	Right	U-Turn	
PM	48	0	32	0	13	PM
NOON	0	0	0	0	0	NOON
AM	24	0	49	0	8	AM

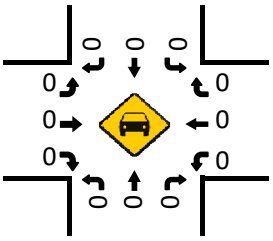
Totals (AM)



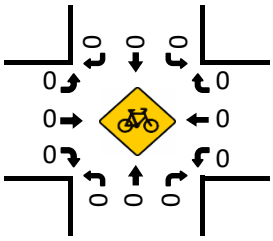
Total Bikes (AM)



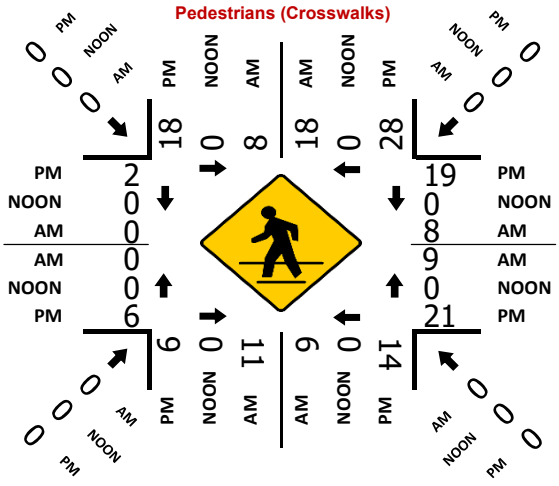
Totals (NOON)



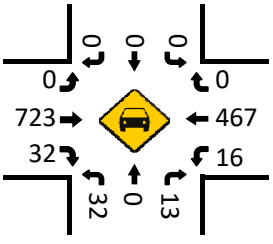
Total Bikes (NOON)



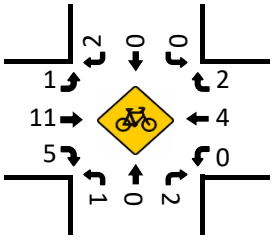
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

La Cienega Ave/McManus Ave & Washington Blvd

Peak Hour Turning Movement Count

ID: 22-020140-012
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	7:00 AM - 10:00 AM
NONE	NONE
04:45 PM - 05:45 PM	4:00 PM - 07:00 PM

SOUTHBOUND — La Cienega Ave/McManus Ave

AM	81	22	55	0	31	AM
NOON	0	0	0	0	0	NOON
PM	136	10	178	0	36	PM

EASTBOUND — Washington Blvd

AM	NOON	PM		
925	0	488	⇦	
0	0	1	↶	0
16	0	24	↱	0
350	0	805	→	1
24	0	8	↴	0
AM	NOON	PM		

WESTBOUND — Washington Blvd

PM	NOON	AM		
11	0	14	↰	0
315	0	792	←	1
9	0	6	↰	1
0	0	0	↶	0
1008	0	425	⇨	
PM	NOON	AM		

NORTHBOUND — La Cienega Ave/McManus Ave

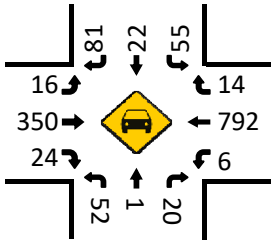
PM	27	0	36	1	25	PM
NOON	0	0	0	0	0	NOON
AM	52	0	52	1	20	AM

CONTROL

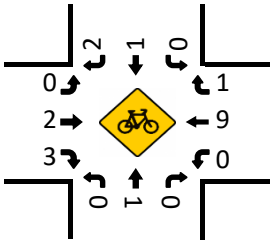
Signalized

TEV	1433 AM	0 NOON	1559 PM
PHF	0.92		0.98

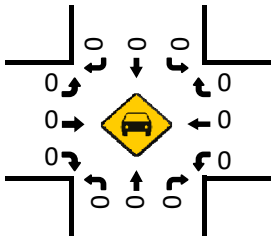
Totals (AM)



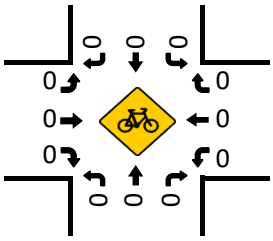
Total Bikes (AM)



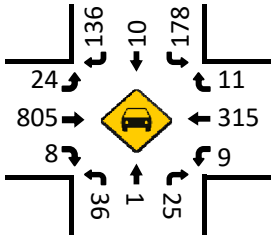
Totals (NOON)



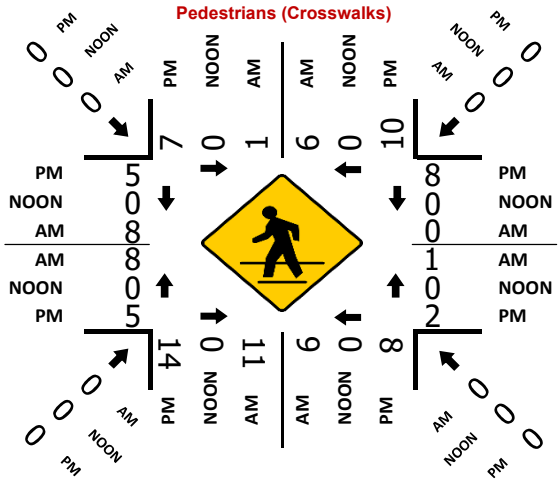
Total Bikes (NOON)



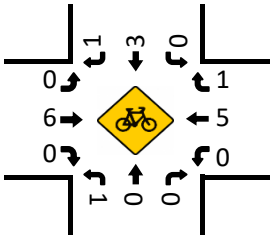
Totals (PM)



Pedestrians (Crosswalks)



Total Bikes (PM)



Prepared by National Data & Surveying Services

S Fairfax Ave & Washington Blvd

Peak Hour Turning Movement Count

ID: 22-020140-013
City: Culver City

Day: Thursday
Date: 5/12/2022

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	7:00 AM - 10:00 AM
NOON	NONE
PM	4:00 PM - 07:00 PM

SOUTHBOUND (S Fairfax Ave)

AM	30	528	170	0	927	AM
NOON	0	0	0	0	0	NOON
PM	49	807	285	1	620	PM
	0	2	2	0		

EASTBOUND (Washington Blvd)

AM	NOON	PM	
711	0	398	
0	0	0	0
40	0	55	1
203	0	671	2
13	0	24	1

WESTBOUND (Washington Blvd)

	PM	NOON	AM
0.5	18	0	29
1.5	340	0	666
2	383	0	683
0	0	0	0
	1633	0	783

CONTROL

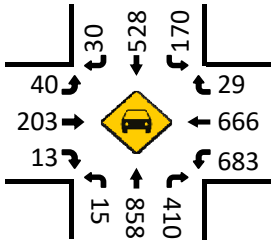
Signalized

TEV	3645 AM	0 NOON	3865 PM
PHF	0.94		0.99

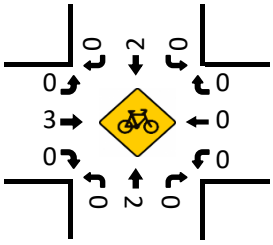
	0	1	2	1		
PM	1214	0	9	546	677	PM
NOON	0	0	0	0	0	NOON
AM	1224	0	15	858	410	AM

NORTHBOUND (S Fairfax Ave)

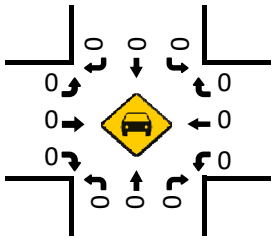
Totals (AM)



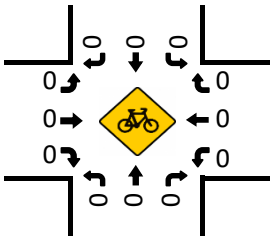
Total Bikes (AM)



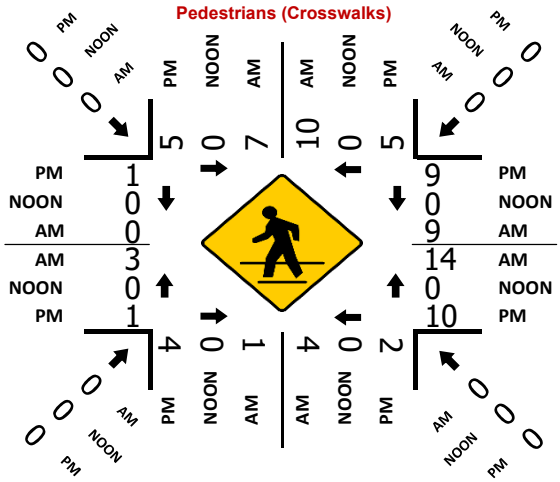
Totals (NOON)



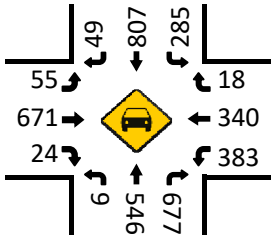
Total Bikes (NOON)



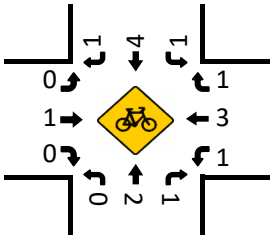
Pedestrians (Crosswalks)



Totals (PM)



Total Bikes (PM)



Prepared by National Data & Surveying Services

VOLUME

3221 Hutchison Ave S/O Dwy

Day: Wednesday
Date: 3/16/2022

City: Culver City
Project #: CA22_020096_001

DAILY TOTALS	NB	SB	EB	WB	Total
	261	742	0	0	1,003

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
0:00	0		0				0		12:00	7		11				18	
0:15	0		0				0		12:15	6		12				18	
0:30	1		0				1		12:30	3		9				12	
0:45	0	1	0				0	1	12:45	7	23	11	43			18	66
1:00	2		0				2		13:00	4		4				8	
1:15	0		0				0		13:15	5		6				11	
1:30	0		0				0		13:30	9		4				13	
1:45	1	3	2	2			3	5	13:45	5	23	8	22			13	45
2:00	1		1				2		14:00	6		17				23	
2:15	0		0				0		14:15	5		12				17	
2:30	1		0				1		14:30	3		8				11	
2:45	0	2	0	1			0	3	14:45	13	27	8	45			21	72
3:00	0		0				0		15:00	2		18				20	
3:15	0		0				0		15:15	5		12				17	
3:30	0		0				0		15:30	5		23				28	
3:45	0		1	1			1	1	15:45	2	14	23	76			25	90
4:00	0		0				0		16:00	4		27				31	
4:15	0		0				0		16:15	2		29				31	
4:30	0		0				0		16:30	3		33				36	
4:45	0		1	1			1	1	16:45	1	10	40	129			41	139
5:00	1		0				1		17:00	4		27				31	
5:15	0		0				0		17:15	8		31				39	
5:30	3		0				3		17:30	3		23				26	
5:45	1	5	0				1	5	17:45	3	18	21	102			24	120
6:00	0		2				2		18:00	1		33				34	
6:15	1		0				1		18:15	1		32				33	
6:30	1		0				1		18:30	5		23				28	
6:45	2	4	0	2			2	6	18:45	4	11	18	106			22	117
7:00	3		2				5		19:00	5		18				23	
7:15	2		0				2		19:15	4		20				24	
7:30	3		2				5		19:30	2		7				9	
7:45	3	11	4	8			7	19	19:45	3	14	17	62			20	76
8:00	5		0				5		20:00	3		9				12	
8:15	6		9				15		20:15	2		8				10	
8:30	2		1				3		20:30	5		12				17	
8:45	5	18	6	16			11	34	20:45	2	12	7	36			9	48
9:00	1		6				7		21:00	5		1				6	
9:15	7		0				7		21:15	1		4				5	
9:30	4		6				10		21:30	0		6				6	
9:45	1	13	4	16			5	29	21:45	3	9	3	14			6	23
10:00	3		4				7		22:00	1		6				7	
10:15	2		2				4		22:15	1		2				3	
10:30	5		4				9		22:30	0		1				1	
10:45	6	16	7	17			13	33	22:45	1	3	3	12			4	15
11:00	4		6				10		23:00	1		4				5	
11:15	7		10				17		23:15	2		1				3	
11:30	6		8				14		23:30	1		0				1	
11:45	3	20	2	26			5	46	23:45	0	4	0	5			0	9
TOTALS		93		90				**183**	**TOTALS**		168		652				**820**
SPLIT %		50.8%		49.2%				**18.2%**	**SPLIT %**		20.5%		79.5%				**81.8%**

DAILY TOTALS	NB	SB	EB	WB	Total
	261	742	0	0	1,003

AM Peak Hour	10:45	11:45				**11:30**	**PM Peak Hour**	14:00	16:30				**16:30**
AM Pk Volume	23	34				**55**	**PM Pk Volume**	27	131				**147**
Pk Hr Factor	0.821	0.708				**0.764**	**Pk Hr Factor**	0.519	0.819				**0.896**
7 - 9 Volume	29	24	0	0		**53**	**4 - 6 Volume**	28	231	0	0		**259**
7 - 9 Peak Hour	8:00	8:00				**8:00**	**4 - 6 Peak Hour**	17:00	16:30				**16:30**
7 - 9 Pk Volume	18	16	0	0		**34**	**4 - 6 Pk Volume**	18	131	0	0		**147**
Pk Hr Factor	0.750	0.444	0.000	0.000		**0.567**	**Pk Hr Factor**	0.563	0.819	0.000	0.000		**0.896**

Thursday, May 26, 2022 | CITY: LA | PROJECT: SC3475

ADT1 Ivy north of Venice.

Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

AM Period	NB		SB			PM Period	NB		SB		
0:00	0		0			12:00	2		3		
0:15	0		1			12:15	1		0		
0:30	0		0			12:30	2		1		
0:45	0	0	0	1	1	12:45	1	6	1	5	11
1:00	0		0			13:00	1		2		
1:15	0		0			13:15	5		4		
1:30	1		0			13:30	5		2		
1:45	0	1	0	0	1	13:45	2	13	0	8	21
2:00	0		0			14:00	2		0		
2:15	0		0			14:15	2		2		
2:30	0		0			14:30	2		4		
2:45	0	0	0	0		14:45	6	12	0	6	18
3:00	0		0			15:00	2		7		
3:15	0		0			15:15	2		0		
3:30	0		0			15:30	2		1		
3:45	0	0	0	0		15:45	3	9	1	9	18
4:00	0		0			16:00	3		2		
4:15	0		0			16:15	5		4		
4:30	1		0			16:30	3		1		
4:45	0	1	0	0	1	16:45	3	14	1	8	22
5:00	1		1			17:00	5		3		
5:15	0		0			17:15	2		2		
5:30	0		0			17:30	3		1		
5:45	0	1	0	1	2	17:45	2	12	0	6	18
6:00	1		0			18:00	1		2		
6:15	0		1			18:15	3		1		
6:30	1		0			18:30	4		2		
6:45	1	3	0	1	4	18:45	2	10	0	5	15
7:00	0		0			19:00	0		0		
7:15	2		1			19:15	1		2		
7:30	0		1			19:30	2		1		
7:45	2	4	3	5	9	19:45	0	3	0	3	6
8:00	2		3			20:00	1		0		
8:15	3		2			20:15	0		0		
8:30	7		3			20:30	1		0		
8:45	2	14	6	14	28	20:45	0	2	1	1	3
9:00	0		2			21:00	1		0		
9:15	1		2			21:15	0		1		
9:30	1		2			21:30	2		0		
9:45	0	2	1	7	9	21:45	2	5	0	1	6
10:00	1		1			22:00	0		0		
10:15	0		0			22:15	0		2		
10:30	2		0			22:30	1		2		
10:45	0	3	1	2	5	22:45	0	1	0	4	5
11:00	0		2			23:00	0		0		
11:15	3		1			23:15	1		0		
11:30	3		0			23:30	1		0		
11:45	0	6	5	8	14	23:45	0	2	0	0	2
Total Vol.		35		39	**74**			89		56	**145**

Daily Totals

NB	SB	Combined
124	95	**219**

	AM			PM		
Split %	47.3%	52.7%	**33.8%**	61.4%	38.6%	**66.2%**
Peak Hour	7:45	8:00	**8:00**	16:15	14:15	**14:15**
Volume	14	14	**28**	16	13	**25**
P.H.F.	0.50	0.58	**0.70**	0.70	0.46	**0.69**

cs@aimtd.com Tell. 714 253 7888

Thursday, May 26, 2022 CITY: LA PROJECT: SC3475

ADT2 Regent between Ivy and Vera. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

AM Period	EB		WB			PM Period	EB		WB		
0:00	3		0			12:00	6		4		
0:15	0		1			12:15	9		7		
0:30	0		2			12:30	9		4		
0:45	1	4	1	4	8	12:45	5	29	10	25	54
1:00	1		0			13:00	13		3		
1:15	1		0			13:15	12		3		
1:30	0		0			13:30	4		6		
1:45	0	2	1	1	3	13:45	13	42	7	19	61
2:00	0		0			14:00	4		10		
2:15	0		0			14:15	5		8		
2:30	0		1			14:30	9		8		
2:45	0	0	0	1	1	14:45	18	36	7	33	69
3:00	0		0			15:00	33		7		
3:15	0		0			15:15	26		4		
3:30	0		0			15:30	29		4		
3:45	0	0	0	0		15:45	21	109	9	24	133
4:00	0		1			16:00	47		3		
4:15	0		0			16:15	44		11		
4:30	0		2			16:30	33		6		
4:45	1	1	1	4	5	16:45	38	162	14	34	196
5:00	0		2			17:00	27		5		
5:15	0		1			17:15	34		3		
5:30	0		1			17:30	26		8		
5:45	2	2	3	7	9	17:45	29	116	11	27	143
6:00	0		2			18:00	19		9		
6:15	2		6			18:15	27		5		
6:30	6		5			18:30	22		9		
6:45	4	12	8	21	33	18:45	11	79	8	31	110
7:00	6		8			19:00	9		8		
7:15	6		12			19:15	13		4		
7:30	3		19			19:30	15		3		
7:45	9	24	30	69	93	19:45	12	49	2	17	66
8:00	7		11			20:00	8		1		
8:15	11		13			20:15	6		4		
8:30	10		14			20:30	9		2		
8:45	11	39	27	65	104	20:45	4	27	4	11	38
9:00	7		14			21:00	6		2		
9:15	6		8			21:15	5		3		
9:30	7		9			21:30	9		1		
9:45	12	32	7	38	70	21:45	3	23	2	8	31
10:00	4		5			22:00	2		1		
10:15	3		5			22:15	4		3		
10:30	5		6			22:30	3		0		
10:45	7	19	7	23	42	22:45	6	15	2	6	21
11:00	4		6			23:00	3		1		
11:15	9		11			23:15	1		2		
11:30	13		10			23:30	6		0		
11:45	9	35	7	34	69	23:45	1	11	1	4	15
Total Vol.	170		267		**437**		698		239		**937**

Daily Totals

EB	WB	Combined
868	506	**1374**

	AM			PM		
Split %	38.9%	61.1%	**31.8%**	74.5%	25.5%	**68.2%**
Peak Hour	8:00	7:30	**8:15**	16:00	16:15	**16:00**
Volume	39	73	**107**	162	36	**196**
P.H.F.	0.89	0.61	**0.70**	0.84	0.64	**0.89**

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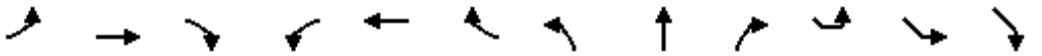
Appendix E: Operations Analysis Worksheets

EXISTING



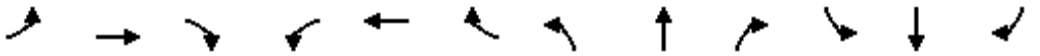
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	327	1216	59	53	1378	195	100	320	70	375	525	234
Future Volume (vph)	327	1216	59	53	1378	195	100	320	70	375	525	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.78	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1159	1711	4916	1405	1711	3421	1191	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1159	1711	4916	1405	1711	3421	1191	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	352	1308	63	56	1451	205	106	340	74	417	583	260
RTOR Reduction (vph)	0	0	37	0	0	103	0	0	53	236	0	0
Lane Group Flow (vph)	352	1308	26	56	1451	102	106	340	21	181	583	260
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.9	49.6	49.6	6.4	40.1	40.1	25.0	25.0	33.4	12.0	12.0	12.0
Effective Green, g (s)	15.9	49.6	49.6	6.4	40.1	40.1	25.0	25.0	33.4	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.41	0.41	0.05	0.33	0.33	0.21	0.21	0.28	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	439	2031	479	91	1642	469	356	712	331	171	171	153
v/s Ratio Prot	c0.11	0.27		0.03	c0.30		0.06	c0.10	0.00	0.11	c0.34	0.17
v/s Ratio Perm			0.02			0.07			0.01			
v/c Ratio	0.80	0.64	0.05	0.62	0.88	0.22	0.30	0.48	0.06	1.06	3.41	1.70
Uniform Delay, d1	50.5	28.1	21.1	55.6	37.7	28.7	40.1	41.8	31.8	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.33	0.61	0.66	1.11	1.04	1.26	1.00	1.00	1.00
Incremental Delay, d2	9.6	1.6	0.2	6.5	5.8	0.8	0.1	0.1	0.0	85.5	1098.9	341.1
Delay (s)	60.1	29.7	21.3	80.5	28.8	19.8	44.5	43.8	40.1	139.5	1152.9	395.1
Level of Service	E	C	C	F	C	B	D	D	D	F	F	F
Approach Delay (s)		35.6			29.4			43.4			492.2	
Approach LOS		D			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	173.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	429
Future Volume (vph)	429
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	477
RTOR Reduction (vph)	243
Lane Group Flow (vph)	234
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.9
Effective Green, g (s)	27.9
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	346
v/s Ratio Prot	0.09
v/s Ratio Perm	0.07
v/c Ratio	0.68
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	4.1
Delay (s)	46.1
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	1076	383	82	1384	147	205	612	41	79	337	42
Future Volume (vph)	111	1076	383	82	1384	147	205	612	41	79	337	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1451	1711	4916	1334	3385	3490	1500	1711	3356	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.48	1.00	
Satd. Flow (perm)	3319	4916	1451	1711	4916	1334	3385	3490	1500	872	3356	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	119	1157	412	86	1457	155	108	322	22	92	392	49
RTOR Reduction (vph)	0	0	199	0	0	72	0	0	17	0	9	0
Lane Group Flow (vph)	119	1157	213	86	1457	83	108	322	5	92	432	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	11.2	49.9	49.9	11.7	50.4	50.4	10.0	26.8	26.8	36.8	26.8	
Effective Green, g (s)	11.2	49.9	49.9	11.7	50.4	50.4	10.0	26.8	26.8	36.8	26.8	
Actuated g/C Ratio	0.09	0.42	0.42	0.10	0.42	0.42	0.08	0.22	0.22	0.31	0.22	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	309	2044	603	166	2064	560	282	779	335	337	749	
v/s Ratio Prot	0.04	c0.24		0.05	c0.30		c0.03	0.09		0.02	c0.13	
v/s Ratio Perm			0.15			0.06			0.00	0.06		
v/c Ratio	0.39	0.57	0.35	0.52	0.71	0.15	0.38	0.41	0.01	0.27	0.58	
Uniform Delay, d1	51.2	26.8	24.0	51.5	28.7	21.5	52.1	39.9	36.3	30.5	41.5	
Progression Factor	0.94	0.93	1.00	0.99	0.89	0.68	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.1	2.6	2.0	0.5	0.9	0.7	0.0	0.4	2.0	
Delay (s)	48.4	25.0	24.1	53.4	27.4	15.1	52.9	40.6	36.3	31.0	43.5	
Level of Service	D	C	C	D	C	B	D	D	D	C	D	
Approach Delay (s)		26.4			27.6			43.4			41.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	19	1154	15	14	1608	11	4	2	1	4	1
Future Volume (vph)	9	19	1154	15	14	1608	11	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1703	4916	1443	1702	4916	1383		1727	1481		1599
Flt Permitted		0.11	1.00	1.00	0.20	1.00	1.00		0.79	1.00		0.88
Satd. Flow (perm)		200	4916	1443	358	4916	1383		1415	1481		1432
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	10	21	1282	17	16	1787	12	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	6
Lane Group Flow (vph)	0	31	1282	14	16	1787	10	0	12	0	0	7
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		167	4121	1209	300	4121	1159		103	108		105
v/s Ratio Prot			0.26			c0.36						
v/s Ratio Perm		0.15		0.01	0.04		0.01		c0.01	0.00		0.00
v/c Ratio		0.19	0.31	0.01	0.05	0.43	0.01		0.12	0.00		0.06
Uniform Delay, d1		1.9	2.1	1.6	1.6	2.5	1.6		52.0	51.5		51.8
Progression Factor		2.40	2.46	4.71	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		2.2	0.2	0.0	0.3	0.3	0.0		0.5	0.0		0.2
Delay (s)		6.6	5.4	7.5	2.0	2.8	1.6		52.5	51.5		52.0
Level of Service		A	A	A	A	A	A		D	D		D
Approach Delay (s)			5.5			2.8			52.3			52.0
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

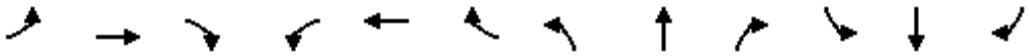
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022



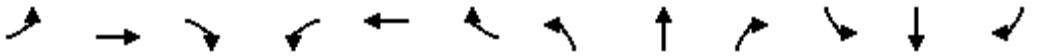
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1059	17	50	1449	154	111	195	13	95	71	18
Future Volume (veh/h)	65	1059	17	50	1449	154	111	195	13	95	71	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.98		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	1151	18	54	1575	167	121	212	14	103	77	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	187	3194	948	359	3194	937	174	266	17	188	132	31
Arrive On Green	1.00	1.00	1.00	0.63	0.63	0.63	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	277	5106	1515	478	5106	1497	486	968	61	520	483	111
Grp Volume(v), veh/h	71	1151	18	54	1575	167	347	0	0	200	0	0
Grp Sat Flow(s),veh/h/ln	277	1702	1515	478	1702	1497	1516	0	0	1114	0	0
Q Serve(g_s), s	13.9	0.0	0.0	5.7	20.0	5.6	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	34.0	0.0	0.0	5.7	20.0	5.6	26.3	0.0	0.0	20.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.51		0.10
Lane Grp Cap(c), veh/h	187	3194	948	359	3194	937	456	0	0	351	0	0
V/C Ratio(X)	0.38	0.36	0.02	0.15	0.49	0.18	0.76	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	187	3194	948	359	3194	937	650	0	0	519	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.39	0.39	0.39	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.5	0.0	0.0	9.5	12.2	9.5	41.1	0.0	0.0	38.3	0.0	0.0
Incr Delay (d2), s/veh	5.8	0.3	0.0	0.3	0.2	0.2	3.3	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.0	0.6	7.0	1.8	10.2	0.0	0.0	5.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.3	0.3	0.0	9.8	12.4	9.6	44.4	0.0	0.0	39.7	0.0	0.0
LnGrp LOS	B	A	A	A	B	A	D	A	A	D	A	A
Approach Vol, veh/h		1240			1796			347			200	
Approach Delay, s/veh		0.9			12.0			44.4			39.7	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.6		39.4		80.6		39.4				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		22.0		22.1		36.0		28.3				
Green Ext Time (p_c), s		26.7		1.3		15.1		2.2				

Intersection Summary		
HCM 6th Ctrl Delay	12.9	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	258	857	112	96	1145	43	158	1591	55	45	791	263
Future Volume (veh/h)	258	857	112	96	1145	43	158	1591	55	45	791	263
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	297	985	129	107	1272	0	180	1808	62	47	833	277
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1307	395	305	1587		292	1869	64	182	1325	437
Arrive On Green	0.03	0.08	0.08	0.12	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1544	1781	5106	1585	1781	5064	173	1781	3764	1242
Grp Volume(v), veh/h	297	985	129	107	1272	0	180	1215	655	47	753	357
Grp Sat Flow(s),veh/h/ln	1728	1702	1544	1781	1702	1585	1781	1702	1834	1781	1702	1602
Q Serve(g_s), s	8.6	22.6	7.3	0.6	27.4	0.0	7.6	42.0	42.1	1.9	22.1	22.3
Cycle Q Clear(g_c), s	8.6	22.6	7.3	0.6	27.4	0.0	7.6	42.0	42.1	1.9	22.1	22.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.78
Lane Grp Cap(c), veh/h	408	1307	395	305	1587		292	1256	677	182	1198	564
V/C Ratio(X)	0.73	0.75	0.33	0.35	0.80		0.62	0.97	0.97	0.26	0.63	0.63
Avail Cap(c_a), veh/h	408	1413	427	305	1587		293	1257	677	213	1257	591
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	51.2	27.4	45.4	38.0	0.0	24.5	37.1	37.2	28.2	32.4	32.4
Incr Delay (d2), s/veh	6.0	3.8	2.0	0.7	4.4	0.0	3.8	18.1	27.1	0.7	0.9	2.1
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	4.1	10.8	3.0	2.8	11.7	0.0	3.4	19.9	23.1	0.8	9.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	55.0	29.4	46.1	42.3	0.0	28.3	55.3	64.2	29.0	33.3	34.5
LnGrp LOS	D	E	C	D	D		C	E	E	C	C	C
Approach Vol, veh/h		1411			1379			2050			1157	
Approach Delay, s/veh		51.2			42.6			55.8			33.5	
Approach LOS		D			D			E			C	

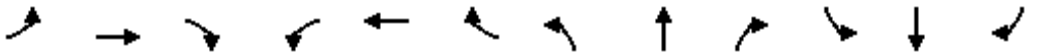
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	51.0	20.6	36.5	14.0	48.9	14.0	43.1
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	3.9	44.1	2.6	24.6	9.6	24.3	10.6	29.4
Green Ext Time (p_c), s	0.0	0.2	0.1	6.1	0.0	7.3	0.0	4.6

Intersection Summary	
HCM 6th Ctrl Delay	47.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] 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)	14	0	8	1	0	2	21	833	22	22	751	33
Future Volume (veh/h)	14	0	8	1	0	2	21	833	22	22	751	33
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		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	0	9	1	0	2	23	905	24	24	1502	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	0	0
Cap, veh/h	52	0	0	4	0	0	354	2490	1051	555	2535	1071
Arrive On Green	0.03	0.00	0.00	0.00	0.00	0.00	0.05	0.70	0.70	0.05	0.70	0.70
Sat Flow, veh/h	1781	15		1781	1		1781	3554	1501	1781	3610	1525
Grp Volume(v), veh/h	15	32.2		1	44.7		23	905	24	24	1502	66
Grp Sat Flow(s),veh/h/ln	1781	C		1781	D		1781	1777	1501	1781	1805	1525
Q Serve(g_s), s	0.5			0.0			0.2	6.7	0.3	0.2	13.9	0.9
Cycle Q Clear(g_c), s	0.5			0.0			0.2	6.7	0.3	0.2	13.9	0.9
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52			4			354	2490	1051	555	2535	1071
V/C Ratio(X)	0.29			0.25			0.06	0.36	0.02	0.04	0.59	0.06
Avail Cap(c_a), veh/h	784			784			733	3243	1370	932	3294	1391
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	31.1			32.6			3.7	3.9	3.0	2.4	5.0	3.0
Incr Delay (d2), s/veh	1.1			12.2			0.0	0.2	0.0	0.0	0.5	0.1
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2			0.0			0.0	1.5	0.1	0.0	3.1	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2			44.7			3.7	4.1	3.0	2.5	5.4	3.1
LnGrp LOS	C			D			A	A	A	A	A	A
Approach Vol, veh/h								952			1592	
Approach Delay, s/veh								4.1			5.3	
Approach LOS								A			A	

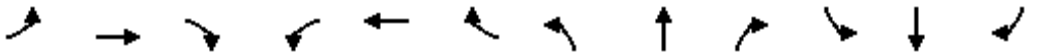
Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	7.2	51.1	5.3	7.1	51.2	7.1
Change Period (Y+Rc), s	4.0	5.3	* 5.2	4.0	5.3	* 5.2
Max Green Setting (Gmax), s	17.0	59.7	* 29	17.0	59.7	* 29
Max Q Clear Time (g_c+I1), s	2.2	8.7	2.0	2.2	15.9	2.5
Green Ext Time (p_c), s	0.0	16.3	0.0	0.0	30.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	5.0
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	283	16	66	438	199	21	264	74	105	182	41
Future Volume (vph)	71	283	16	66	438	199	21	264	74	105	182	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1716		1711	1801	1531	1711	1801	1412
Flt Permitted	0.24	1.00	1.00	0.53	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	432	1801	1397	951	1716		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	308	17	72	476	216	23	287	80	114	198	45
RTOR Reduction (vph)	0	0	7	0	12	0	0	0	51	0	0	0
Lane Group Flow (vph)	77	308	10	72	680	0	23	287	29	114	198	45
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	67.5	67.5	67.5	67.5	67.5		6.0	25.3	25.3	11.9	31.2	31.2
Effective Green, g (s)	67.5	67.5	67.5	67.5	67.5		6.0	25.3	25.3	11.9	31.2	31.2
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.56		0.05	0.21	0.21	0.10	0.26	0.26
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	243	1013	785	534	965		85	379	322	169	468	367
v/s Ratio Prot		0.17			c0.40		0.01	c0.16		c0.07	0.11	
v/s Ratio Perm	0.18		0.01	0.08					0.02			0.03
v/c Ratio	0.32	0.30	0.01	0.13	0.70		0.27	0.76	0.09	0.67	0.42	0.12
Uniform Delay, d1	14.0	13.9	11.6	12.4	19.0		54.9	44.5	38.1	52.2	36.9	33.9
Progression Factor	1.00	1.00	1.00	0.61	0.67		1.00	1.00	1.00	1.47	0.85	0.69
Incremental Delay, d2	3.4	0.8	0.0	0.5	4.0		0.6	7.5	0.0	0.8	0.0	0.0
Delay (s)	17.4	14.6	11.6	8.0	16.9		55.5	52.0	38.1	77.2	31.2	23.5
Level of Service	B	B	B	A	B		E	D	D	E	C	C
Approach Delay (s)		15.0			16.0			49.3			45.0	
Approach LOS		B			B			D			D	

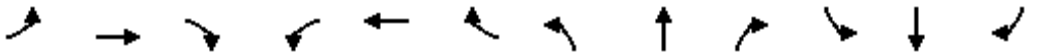
Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	348	133	101	625	64	65
Future Volume (vph)	348	133	101	625	64	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.50	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	894	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	378	145	110	679	70	71
RTOR Reduction (vph)	0	21	0	0	0	60
Lane Group Flow (vph)	378	124	110	679	70	11
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.8	88.8	101.8	101.8	8.9	17.9
Effective Green, g (s)	88.8	88.8	101.8	101.8	8.9	17.9
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.07	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1332	1132	819	1527	126	279
v/s Ratio Prot	0.21		0.01	c0.38		0.00
v/s Ratio Perm		0.08	0.10		c0.04	0.00
v/c Ratio	0.28	0.11	0.13	0.44	0.56	0.04
Uniform Delay, d1	5.1	4.4	1.7	2.2	53.6	43.7
Progression Factor	1.49	2.11	0.73	0.60	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.0	0.7	3.0	0.0
Delay (s)	8.2	9.5	1.3	2.0	56.6	43.7
Level of Service	A	A	A	A	E	D
Approach Delay (s)	8.5			1.9	50.1	
Approach LOS	A			A	D	

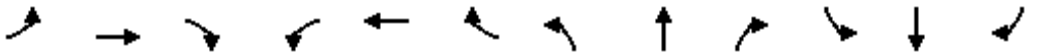
Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	264	106	95	500	99	132	748	68	72	586	87
Future Volume (vph)	45	264	106	95	500	99	132	748	68	72	586	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1483	1711	3421	1302
Flt Permitted	0.20	1.00	1.00	0.48	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	356	1801	1280	862	1801	1531	1711	3421	1483	1711	3421	1302
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	287	115	103	543	108	143	813	74	78	637	95
RTOR Reduction (vph)	0	0	71	0	0	0	0	0	47	0	0	65
Lane Group Flow (vph)	49	287	44	103	543	108	143	813	27	78	637	30
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	55.4	45.9	45.9	55.4	45.9	45.9	14.2	34.3	43.8	8.9	28.8	38.3
Effective Green, g (s)	55.4	45.9	45.9	55.4	45.9	45.9	14.2	34.3	43.8	8.9	28.8	38.3
Actuated g/C Ratio	0.46	0.38	0.38	0.46	0.38	0.38	0.12	0.29	0.36	0.07	0.24	0.32
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	271	688	489	465	688	585	202	977	541	126	821	415
v/s Ratio Prot	0.01	0.16		c0.02	c0.30		0.08	c0.24	0.00	0.05	c0.19	0.01
v/s Ratio Perm	0.07		0.03	0.08		0.07			0.01			0.02
v/c Ratio	0.18	0.42	0.09	0.22	0.79	0.18	0.71	0.83	0.05	0.62	0.78	0.07
Uniform Delay, d1	20.9	27.2	23.7	18.8	32.8	24.6	50.9	40.2	24.6	53.9	42.6	28.5
Progression Factor	0.62	0.82	1.00	0.80	0.87	0.84	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	1.8	0.4	0.1	5.3	0.4	8.9	6.8	0.0	6.2	5.4	0.0
Delay (s)	13.2	24.2	24.0	15.1	33.9	21.0	59.8	47.0	24.7	60.1	48.0	28.5
Level of Service	B	C	C	B	C	C	E	D	C	E	D	C
Approach Delay (s)		23.0			29.5			47.2			46.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	348	25	14	648	30	38	0	9	0	0	9
Future Volume (veh/h)	58	348	25	14	648	30	38	0	9	0	0	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	378	27	28	1296	33	41	0	10	0	0	10
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	295	1495	1267	907	1624	1376	127	0	76	0	89	76
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	412	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Grp Volume(v), veh/h	63	378	27	28	1296	33	41	0	10	0	0	10
Grp Sat Flow(s),veh/h/ln	412	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Q Serve(g_s), s	6.5	0.0	0.0	0.3	35.7	0.3	3.4	0.0	0.7	0.0	0.0	0.7
Cycle Q Clear(g_c), s	33.9	0.0	0.0	0.3	35.7	0.3	3.4	0.0	0.7	0.0	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	295	1495	1267	907	1624	1376	127	0	76	0	89	76
V/C Ratio(X)	0.21	0.25	0.02	0.03	0.80	0.02	0.32	0.00	0.13	0.00	0.00	0.13
Avail Cap(c_a), veh/h	295	1495	1267	1066	1624	1376	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	4.9	0.0	0.0	1.4	3.4	1.1	56.1	0.0	54.8	0.0	0.0	54.8
Incr Delay (d2), s/veh	1.5	0.4	0.0	0.0	4.2	0.0	0.5	0.0	0.3	0.0	0.0	0.3
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	0.2	0.0	0.1	7.4	0.1	1.2	0.0	0.3	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.4	0.4	0.0	1.4	7.6	1.1	56.6	0.0	55.1	0.0	0.0	55.1
LnGrp LOS	A	A	A	A	A	A	E	A	E	A	A	E
Approach Vol, veh/h		468			1357			51			10	
Approach Delay, s/veh		1.2			7.3			56.3			55.1	
Approach LOS		A			A			E			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		109.5		10.5	8.2	101.2		10.5				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		37.7		5.4	2.3	35.9		2.7				
Green Ext Time (p_c), s		29.2		0.1	0.0	5.5		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	7.4	
HCM 6th LOS	A	

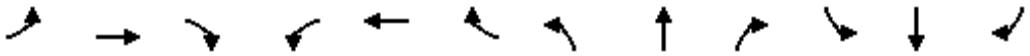
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	18	6	650	49	8
Future Volume (vph)	346	18	6	650	49	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1693	
Flt Permitted	1.00	1.00	0.54	1.00	0.96	
Satd. Flow (perm)	1801	1531	969	1801	1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	20	7	707	53	9
RTOR Reduction (vph)	0	3	0	0	7	0
Lane Group Flow (vph)	376	17	7	707	55	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	102.7	102.7	102.7	102.7	8.0	
Effective Green, g (s)	102.7	102.7	102.7	102.7	8.0	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.07	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1541	1310	829	1541	112	
v/s Ratio Prot	0.21			c0.39		
v/s Ratio Perm		0.01	0.01		c0.03	
v/c Ratio	0.24	0.01	0.01	0.46	0.50	
Uniform Delay, d1	1.6	1.3	1.3	2.1	54.1	
Progression Factor	2.87	4.27	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.0	0.0	1.0	1.3	
Delay (s)	4.9	5.4	1.3	3.0	55.3	
Level of Service	A	A	A	A	E	
Approach Delay (s)	4.9			3.0	55.3	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

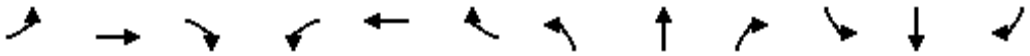
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	350	24	6	792	14	52	1	20	55	22	81
Future Volume (vph)	16	350	24	6	792	14	52	1	20	55	22	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.93	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.98	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1648	
Flt Permitted		0.95	1.00		1.00	1.00		0.46			0.85	
Satd. Flow (perm)		1717	1531		1795	1531		790			1431	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	380	26	7	861	15	57	1	22	60	24	88
RTOR Reduction (vph)	0	0	9	0	0	5	0	13	0	0	36	0
Lane Group Flow (vph)	0	397	17	0	868	10	0	67	0	0	136	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		78.1	78.1		78.1	78.1		12.7			15.7	
Effective Green, g (s)		78.1	78.1		78.1	78.1		12.7			15.7	
Actuated g/C Ratio		0.65	0.65		0.65	0.65		0.11			0.13	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		1117	996		1168	996		83			187	
v/s Ratio Prot												
v/s Ratio Perm		0.23	0.01		c0.48	0.01		c0.09			c0.10	
v/c Ratio		0.36	0.02		0.74	0.01		0.81			0.73	
Uniform Delay, d1		9.5	7.4		14.2	7.4		52.5			50.1	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		0.9	0.0		4.3	0.0		41.5			11.4	
Delay (s)		10.4	7.4		18.5	7.4		94.0			61.5	
Level of Service		B	A		B	A		F			E	
Approach Delay (s)		10.2			18.3			94.0			61.5	
Approach LOS		B			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	203	13	683	666	29	15	858	410	170	528	30
Future Volume (veh/h)	40	203	13	683	666	29	15	858	410	170	528	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	221	0	742	724	0	16	933	446	185	574	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	967		357	1265		404	1514	820	241	1841	106
Arrive On Green	0.19	0.19	0.00	0.10	0.36	0.00	0.43	0.43	0.43	0.07	0.54	0.54
Sat Flow, veh/h	722	5274	0	3456	3647	0	808	3554	1540	3456	3410	196
Grp Volume(v), veh/h	43	221	0	742	724	0	16	933	446	185	299	308
Grp Sat Flow(s),veh/h/ln	722	1702	0	1728	1777	0	808	1777	1540	1728	1777	1829
Q Serve(g_s), s	6.2	4.4	0.0	12.4	19.8	0.0	1.4	24.5	23.0	6.3	11.2	11.2
Cycle Q Clear(g_c), s	6.2	4.4	0.0	12.4	19.8	0.0	1.4	24.5	23.0	6.3	11.2	11.2
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	197	967		357	1265		404	1514	820	241	959	987
V/C Ratio(X)	0.22	0.23		2.08	0.57		0.04	0.62	0.54	0.77	0.31	0.31
Avail Cap(c_a), veh/h	287	1604		357	1265		404	1514	820	279	959	987
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	41.2	0.0	53.8	31.3	0.0	20.2	26.8	18.7	54.9	15.3	15.3
Incr Delay (d2), s/veh	2.2	0.5	0.0	494.6	0.7	0.0	0.2	1.9	2.6	10.5	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.9	0.0	29.9	8.5	0.0	0.3	10.5	8.5	3.1	4.6	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.2	41.7	0.0	548.4	31.9	0.0	20.4	28.7	21.3	65.4	16.1	16.1
LnGrp LOS	D	D		F	C		C	C	C	E	B	B
Approach Vol, veh/h		264			1466			1395			792	
Approach Delay, s/veh		42.1			293.3			26.2			27.6	
Approach LOS		D			F			C			C	

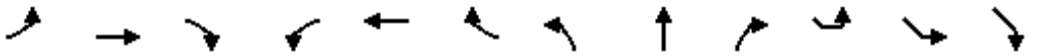
Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	20.0	29.0	13.7	57.3		49.0		71.0				
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2				
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8				
Max Q Clear Time (g_c+I1), s	14.4	8.2	8.3	26.5		21.8		13.2				
Green Ext Time (p_c), s	0.0	4.3	0.1	5.7		4.7		5.6				

Intersection Summary			
HCM 6th Ctrl Delay		127.5	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



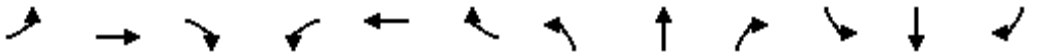
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	189	1299	63	142	1398	128	102	302	220	150	404	182
Future Volume (vph)	189	1299	63	142	1398	128	102	302	220	150	404	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1157	1711	4916	1409	1711	3421	1250	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1157	1711	4916	1409	1711	3421	1250	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	203	1397	68	149	1472	135	109	321	234	167	449	202
RTOR Reduction (vph)	0	0	44	0	0	82	0	0	67	139	0	0
Lane Group Flow (vph)	203	1397	24	149	1472	53	109	321	167	28	449	202
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.4	42.5	42.5	13.1	47.2	47.2	24.8	24.8	39.9	12.6	12.6	12.6
Effective Green, g (s)	8.4	42.5	42.5	13.1	47.2	47.2	24.8	24.8	39.9	12.6	12.6	12.6
Actuated g/C Ratio	0.07	0.35	0.35	0.11	0.39	0.39	0.21	0.21	0.33	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	232	1741	409	186	1933	554	353	707	415	179	179	160
v/s Ratio Prot	0.06	0.28		c0.09	c0.30		0.06	c0.09	0.04	0.02	c0.26	0.13
v/s Ratio Perm			0.02			0.04			0.09			
v/c Ratio	0.88	0.80	0.06	0.80	0.76	0.10	0.31	0.45	0.40	0.16	2.51	1.26
Uniform Delay, d1	55.3	35.0	25.6	52.2	31.5	22.9	40.3	41.7	30.9	48.9	53.7	53.7
Progression Factor	1.00	1.00	1.00	1.32	0.60	0.80	0.83	0.84	0.93	1.00	1.00	1.00
Incremental Delay, d2	27.8	4.0	0.3	18.3	2.6	0.3	0.2	0.1	0.2	0.6	695.1	158.5
Delay (s)	83.1	39.0	25.8	87.0	21.6	18.6	33.7	35.3	29.0	49.4	748.8	212.2
Level of Service	F	D	C	F	C	B	C	D	C	D	F	F
Approach Delay (s)		43.8			26.9			32.8			347.8	
Approach LOS		D			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	103.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	304
Future Volume (vph)	304
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1462
Flt Permitted	1.00
Satd. Flow (perm)	1462
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	338
RTOR Reduction (vph)	257
Lane Group Flow (vph)	81
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	21.0
Effective Green, g (s)	21.0
Actuated g/C Ratio	0.18
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	255
v/s Ratio Prot	0.02
v/s Ratio Perm	0.03
v/c Ratio	0.32
Uniform Delay, d1	43.3
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	43.5
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1515	337	132	1234	47	179	287	138	105	426	40
Future Volume (vph)	70	1515	337	132	1234	47	179	287	138	105	426	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1449	1711	4916	1334	3385	3490	1501	1711	3370	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.66	1.00	
Satd. Flow (perm)	3319	4916	1449	1711	4916	1334	3385	3490	1501	1182	3370	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	75	1629	362	139	1299	49	94	151	73	122	495	47
RTOR Reduction (vph)	0	0	135	0	0	29	0	0	55	0	7	0
Lane Group Flow (vph)	75	1629	227	139	1299	20	94	151	18	122	535	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	9.8	43.8	43.8	15.6	49.6	49.6	10.0	29.0	29.0	39.0	29.0	
Effective Green, g (s)	9.8	43.8	43.8	15.6	49.6	49.6	10.0	29.0	29.0	39.0	29.0	
Actuated g/C Ratio	0.08	0.36	0.36	0.13	0.41	0.41	0.08	0.24	0.24	0.32	0.24	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	271	1794	528	222	2031	551	282	843	362	428	814	
v/s Ratio Prot	0.02	c0.33		0.08	c0.26		c0.03	0.04		0.02	c0.16	
v/s Ratio Perm			0.16			0.02			0.01	0.07		
v/c Ratio	0.28	0.91	0.43	0.63	0.64	0.04	0.33	0.18	0.05	0.29	0.66	
Uniform Delay, d1	51.8	36.2	28.7	49.4	28.1	21.0	51.9	36.1	34.9	29.4	41.0	
Progression Factor	0.84	0.81	0.54	1.00	0.80	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.9	0.2	5.2	1.5	0.1	0.7	0.2	0.1	0.4	2.9	
Delay (s)	43.8	30.1	15.8	54.7	24.0	21.1	52.6	36.3	35.0	29.8	43.9	
Level of Service	D	C	B	D	C	C	D	D	D	C	D	
Approach Delay (s)		28.1			26.7			40.8			41.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	6	16	1667	39	113	1278	10	21	1	15	114	5
Future Volume (vph)	6	16	1667	39	113	1278	10	21	1	15	114	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		0.99	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1700	4916	1442	1711	4916	1380		1704	1486		1657
Flt Permitted		0.16	1.00	1.00	0.09	1.00	1.00		0.70	1.00		0.75
Satd. Flow (perm)		284	4916	1442	165	4916	1380		1247	1486		1293
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	7	18	1852	43	126	1420	11	40	2	28	139	6
RTOR Reduction (vph)	0	0	0	7	0	0	3	0	0	12	0	11
Lane Group Flow (vph)	0	25	1852	36	126	1420	8	0	42	16	0	174
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		87.0	87.0	87.0	87.0	87.0	87.0		22.4	22.4		22.4
Effective Green, g (s)		87.0	87.0	87.0	87.0	87.0	87.0		22.4	22.4		22.4
Actuated g/C Ratio		0.72	0.72	0.72	0.72	0.72	0.72		0.19	0.19		0.19
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		205	3564	1045	119	3564	1000		232	277		241
v/s Ratio Prot			0.38			0.29						
v/s Ratio Perm		0.09		0.02	c0.76		0.01		0.03	0.01		c0.13
v/c Ratio		0.12	0.52	0.03	1.06	0.40	0.01		0.18	0.06		0.72
Uniform Delay, d1		5.0	7.3	4.7	16.5	6.4	4.6		41.1	40.1		45.9
Progression Factor		1.46	1.32	1.94	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.8	0.4	0.0	99.2	0.3	0.0		0.4	0.1		10.3
Delay (s)		8.1	10.0	9.1	115.7	6.7	4.6		41.5	40.2		56.2
Level of Service		A	A	A	F	A	A		D	D		E
Approach Delay (s)			9.9			15.5			41.0			56.2
Approach LOS			A			B			D			E

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

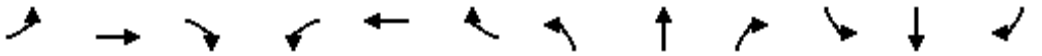
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	33
Future Volume (vph)	33
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	40
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022



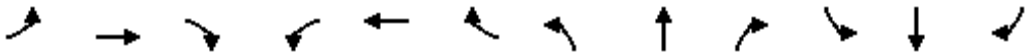
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	1697	63	79	1160	36	26	32	12	174	108	4
Future Volume (veh/h)	66	1697	63	79	1160	36	26	32	12	174	108	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	1845	68	86	1261	39	28	35	13	189	117	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	3274	972	163	3274	961	170	203	68	289	149	5
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	423	5106	1516	234	5106	1499	497	785	264	930	576	20
Grp Volume(v), veh/h	72	1845	68	86	1261	39	76	0	0	310	0	0
Grp Sat Flow(s),veh/h/ln	423	1702	1516	234	1702	1499	1546	0	0	1525	0	0
Q Serve(g_s), s	11.7	24.4	2.0	39.1	14.1	1.2	0.0	0.0	0.0	18.4	0.0	0.0
Cycle Q Clear(g_c), s	25.8	24.4	2.0	63.4	14.1	1.2	4.0	0.0	0.0	22.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.37		0.17	0.61		0.01
Lane Grp Cap(c), veh/h	282	3274	972	163	3274	961	441	0	0	443	0	0
V/C Ratio(X)	0.26	0.56	0.07	0.53	0.39	0.04	0.17	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	282	3274	972	163	3274	961	651	0	0	647	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.4	12.1	8.1	29.9	10.3	7.9	34.4	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.7	0.1	9.8	0.3	0.1	0.2	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	8.5	0.7	2.5	4.9	0.4	1.8	0.0	0.0	8.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	12.8	8.2	39.7	10.5	8.0	34.6	0.0	0.0	43.1	0.0	0.0
LnGrp LOS	B	B	A	D	B	A	C	A	A	D	A	A
Approach Vol, veh/h		1985			1386			76			310	
Approach Delay, s/veh		12.9			12.3			34.6			43.1	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.5		37.5		82.5		37.5				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		65.4		24.5		27.8		6.0				
Green Ext Time (p_c), s		0.0		1.9		26.4		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



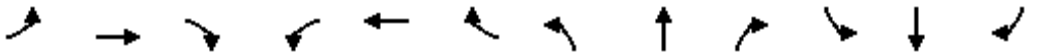
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	276	1362	105	108	784	11	65	793	46	120	907	358
Future Volume (veh/h)	276	1362	105	108	784	11	65	793	46	120	907	358
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	317	1566	121	120	871	0	74	901	52	126	955	377
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	437	1413	428	293	1731		231	1601	92	308	1178	465
Arrive On Green	0.03	0.09	0.09	0.13	0.34	0.00	0.08	0.32	0.32	0.08	0.33	0.33
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4930	284	1781	3564	1405
Grp Volume(v), veh/h	317	1566	121	120	871	0	74	621	332	126	912	420
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1810	1781	1702	1565
Q Serve(g_s), s	8.9	33.2	6.8	3.2	16.3	0.0	3.1	18.1	18.2	5.4	29.4	29.5
Cycle Q Clear(g_c), s	8.9	33.2	6.8	3.2	16.3	0.0	3.1	18.1	18.2	5.4	29.4	29.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.90
Lane Grp Cap(c), veh/h	437	1413	428	293	1731		231	1106	588	308	1125	517
V/C Ratio(X)	0.72	1.11	0.28	0.41	0.50		0.32	0.56	0.56	0.41	0.81	0.81
Avail Cap(c_a), veh/h	437	1413	428	293	1731		243	1257	668	310	1257	578
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.77	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.2	54.5	26.5	45.9	31.6	0.0	26.7	33.5	33.5	24.5	36.7	36.7
Incr Delay (d2), s/veh	4.6	57.4	1.3	0.9	1.0	0.0	0.8	1.0	1.8	0.9	3.7	7.8
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	4.2	22.6	0.2	3.2	6.7	0.0	1.3	7.4	8.1	2.3	12.4	12.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	111.9	27.8	46.9	32.7	0.0	27.5	34.4	35.3	25.3	40.5	44.6
LnGrp LOS	D	F	C	D	C		C	C	D	C	D	D
Approach Vol, veh/h		2004			991			1027			1458	
Approach Delay, s/veh		96.2			34.4			34.2			40.3	
Approach LOS		F			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	45.7	21.5	39.0	13.2	46.4	14.0	46.5
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.4	20.2	5.2	35.2	5.1	31.5	10.9	18.3
Green Ext Time (p_c), s	0.1	11.3	0.1	0.0	0.0	7.0	0.0	8.0

Intersection Summary	
HCM 6th Ctrl Delay	58.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] 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)	14	0	31	4	0	17	35	572	1	0	880	43
Future Volume (veh/h)	14	0	31	4	0	17	35	572	1	0	880	43
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		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	0	34	4	0	18	38	622	1	0	1760	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	0	0
Cap, veh/h	51	0	0	15	0	0	323	2953	1254	669	2569	1086
Arrive On Green	0.03	0.00	0.00	0.01	0.00	0.00	0.07	0.83	0.83	0.00	0.71	0.71
Sat Flow, veh/h	1781	15		1781	4		1781	3554	1509	1781	3610	1525
Grp Volume(v), veh/h	15	36.8		4	40.2		38	622	1	0	1760	86
Grp Sat Flow(s),veh/h/ln	1781	D		1781	D		1781	1777	1509	1781	1805	1525
Q Serve(g_s), s	0.6			0.2			0.3	2.7	0.0	0.0	20.5	1.3
Cycle Q Clear(g_c), s	0.6			0.2			0.3	2.7	0.0	0.0	20.5	1.3
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51			15			323	2953	1254	669	2569	1086
V/C Ratio(X)	0.29			0.26			0.12	0.21	0.00	0.00	0.68	0.08
Avail Cap(c_a), veh/h	686			686			611	2953	1254	1072	2882	1218
HCM Platoon Ratio	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	0.00	1.00	1.00
Uniform Delay (d), s/veh	35.6			36.8			5.5	1.3	1.1	0.0	6.1	3.3
Incr Delay (d2), s/veh	1.2			3.4			0.1	0.1	0.0	0.0	0.9	0.1
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3			0.1			0.1	0.2	0.0	0.0	5.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8			40.2			5.5	1.4	1.1	0.0	6.9	3.4
LnGrp LOS	D			D			A	A	A	A	A	A
Approach Vol, veh/h								661			1846	
Approach Delay, s/veh								1.6			6.8	
Approach LOS								A			A	

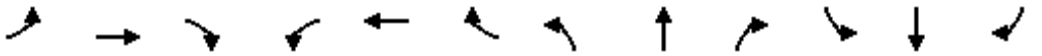
Timer - Assigned Phs	1	2	3		5	6	7					
Phs Duration (G+Y+Rc), s	0.0	67.4	5.8		8.9	58.5	7.3					
Change Period (Y+Rc), s	4.0	5.3	* 5.2		4.0	5.3	* 5.2					
Max Green Setting (Gmax), s	17.0	59.7	* 29		17.0	59.7	* 29					
Max Q Clear Time (g_c+I1), s	0.0	4.7	2.2		2.3	22.5	2.6					
Green Ext Time (p_c), s	0.0	9.7	0.0		0.0	30.7	0.0					

Intersection Summary	
HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	492	35	56	222	148	17	201	59	127	284	65
Future Volume (vph)	247	492	35	56	222	148	17	201	59	127	284	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.94	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1613	1801	1397	1711	1692		1711	1801	1531	1711	1801	1412
Flt Permitted	0.45	1.00	1.00	0.36	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	772	1801	1397	639	1692		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	535	38	61	241	161	18	218	64	138	309	71
RTOR Reduction (vph)	0	0	16	0	17	0	0	0	52	0	0	0
Lane Group Flow (vph)	268	535	22	61	385	0	18	218	12	138	309	71
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	68.5	68.5	68.5	68.5	68.5		4.0	23.2	23.2	13.0	32.2	32.2
Effective Green, g (s)	68.5	68.5	68.5	68.5	68.5		4.0	23.2	23.2	13.0	32.2	32.2
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.03	0.19	0.19	0.11	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	440	1028	797	364	965		57	348	295	185	483	378
v/s Ratio Prot		0.30			0.23		0.01	0.12		c0.08	c0.17	
v/s Ratio Perm	c0.35		0.02	0.10					0.01			0.05
v/c Ratio	0.61	0.52	0.03	0.17	0.40		0.32	0.63	0.04	0.75	0.64	0.19
Uniform Delay, d1	16.9	15.7	11.2	12.2	14.3		56.7	44.4	39.4	51.9	38.8	33.8
Progression Factor	1.00	1.00	1.00	1.42	1.55		1.00	1.00	1.00	0.94	0.89	0.94
Incremental Delay, d2	6.2	1.9	0.1	1.0	1.2		1.2	2.5	0.0	9.0	1.4	0.1
Delay (s)	23.1	17.6	11.3	18.3	23.3		57.8	47.0	39.4	57.9	35.8	32.0
Level of Service	C	B	B	B	C		E	D	D	E	D	C
Approach Delay (s)		19.1			22.7			46.0			41.2	
Approach LOS		B			C			D			D	

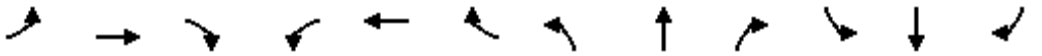
Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	603	78	87	356	70	97
Future Volume (vph)	603	78	87	356	70	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.34	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	614	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	655	85	95	387	76	105
RTOR Reduction (vph)	0	7	0	0	0	89
Lane Group Flow (vph)	655	78	95	387	76	16
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.6	88.6	101.6	101.6	9.1	18.1
Effective Green, g (s)	88.6	88.6	101.6	101.6	9.1	18.1
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1329	1130	602	1524	129	281
v/s Ratio Prot	c0.36		0.01	c0.21		0.00
v/s Ratio Perm		0.05	0.12		c0.04	0.01
v/c Ratio	0.49	0.07	0.16	0.25	0.59	0.06
Uniform Delay, d1	6.5	4.3	2.8	1.8	53.6	43.6
Progression Factor	0.81	0.81	0.62	0.59	1.00	1.00
Incremental Delay, d2	1.2	0.1	0.0	0.4	4.4	0.0
Delay (s)	6.4	3.6	1.8	1.4	58.0	43.7
Level of Service	A	A	A	A	E	D
Approach Delay (s)	6.1			1.5	49.7	
Approach LOS	A			A	D	

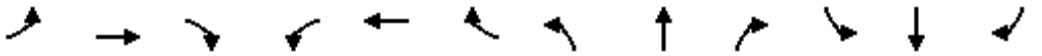
Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	389	171	147	279	116	128	451	252	88	696	102
Future Volume (vph)	49	389	171	147	279	116	128	451	252	88	696	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.86
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1709	1801	1280	1711	1801	1531	1711	3421	1486	1711	3421	1313
Flt Permitted	0.45	1.00	1.00	0.31	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	807	1801	1280	554	1801	1531	1711	3421	1486	1711	3421	1313
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	423	186	160	303	126	139	490	274	96	757	111
RTOR Reduction (vph)	0	0	118	0	0	0	0	0	105	0	0	72
Lane Group Flow (vph)	53	423	68	160	303	126	139	490	169	96	757	39
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	55.6	43.7	43.7	55.6	43.7	43.7	12.1	31.6	43.5	11.4	30.7	42.6
Effective Green, g (s)	55.6	43.7	43.7	55.6	43.7	43.7	12.1	31.6	43.5	11.4	30.7	42.6
Actuated g/C Ratio	0.46	0.36	0.36	0.46	0.36	0.36	0.10	0.26	0.36	0.10	0.26	0.36
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	463	655	466	371	655	557	172	900	538	162	875	466
v/s Ratio Prot	0.01	c0.23		c0.04	0.17		c0.08	0.14	0.03	0.06	c0.22	0.01
v/s Ratio Perm	0.04		0.05	0.16		0.08			0.08			0.02
v/c Ratio	0.11	0.65	0.15	0.43	0.46	0.23	0.81	0.54	0.31	0.59	0.87	0.08
Uniform Delay, d1	18.2	31.7	25.6	20.6	29.2	26.4	52.8	38.0	27.5	52.1	42.7	25.7
Progression Factor	0.62	0.79	1.90	0.86	0.93	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	4.4	0.6	0.2	2.0	0.8	22.4	1.2	0.1	3.8	9.7	0.0
Delay (s)	11.3	29.5	49.3	18.0	29.0	24.8	75.2	39.2	27.6	55.9	52.4	25.8
Level of Service	B	C	D	B	C	C	E	D	C	E	D	C
Approach Delay (s)		33.6			25.1			41.2			49.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	723	17	23	468	2	34	0	21	7	0	54
Future Volume (veh/h)	4	723	17	23	468	2	34	0	21	7	0	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	786	18	46	936	2	37	0	23	8	0	59
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	414	1339	1134	627	1487	1260	62	0	192	62	0	192
Arrive On Green	1.00	1.00	1.00	0.05	0.79	0.79	0.12	0.00	0.12	0.12	0.00	0.12
Sat Flow, veh/h	597	1870	1585	1781	1870	1585	16	0	1585	16	0	1585
Grp Volume(v), veh/h	4	786	18	46	936	2	37	0	23	8	0	59
Grp Sat Flow(s),veh/h/ln	597	1870	1585	1781	1870	1585	16	0	1585	16	0	1585
Q Serve(g_s), s	0.1	0.0	0.0	0.7	24.7	0.0	0.2	0.0	1.6	0.2	0.0	4.1
Cycle Q Clear(g_c), s	14.8	0.0	0.0	0.7	24.7	0.0	14.5	0.0	1.6	14.5	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	414	1339	1134	627	1487	1260	62	0	192	62	0	192
V/C Ratio(X)	0.01	0.59	0.02	0.07	0.63	0.00	0.60	0.00	0.12	0.13	0.00	0.31
Avail Cap(c_a), veh/h	414	1339	1134	768	1487	1260	293	0	465	301	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.81	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	1.3	0.0	0.0	3.0	5.1	2.5	60.0	0.0	47.0	60.0	0.0	48.1
Incr Delay (d2), s/veh	0.0	1.5	0.0	0.0	2.0	0.0	3.4	0.0	0.1	0.3	0.0	0.3
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	0.0	0.6	0.0	0.2	7.9	0.0	1.2	0.0	0.6	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.3	1.5	0.0	3.1	7.1	2.5	63.4	0.0	47.1	60.3	0.0	48.5
LnGrp LOS	A	A	A	A	A	A	E	A	D	E	A	D
Approach Vol, veh/h		808			984			60			67	
Approach Delay, s/veh		1.5			6.9			57.2			49.9	
Approach LOS		A			A			E			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		100.5		19.5	9.5	91.0		19.5				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		26.7		16.5	2.7	16.8		16.5				
Green Ext Time (p_c), s		19.9		0.1	0.0	13.9		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	7.7	
HCM 6th LOS	A	

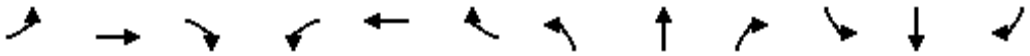
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	723	32	16	467	32	13
Future Volume (vph)	723	32	16	467	32	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	1801	1531	1711	1801	1672	
Flt Permitted	1.00	1.00	0.34	1.00	0.97	
Satd. Flow (perm)	1801	1531	613	1801	1672	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	786	35	17	508	35	14
RTOR Reduction (vph)	0	2	0	0	13	0
Lane Group Flow (vph)	786	33	17	508	36	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	527	1548	104	
v/s Ratio Prot	c0.44			0.28		
v/s Ratio Perm		0.02	0.03		c0.02	
v/c Ratio	0.51	0.02	0.03	0.33	0.34	
Uniform Delay, d1	2.1	1.2	1.2	1.6	53.9	
Progression Factor	0.33	0.40	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.0	0.1	0.6	0.7	
Delay (s)	1.8	0.5	1.3	2.2	54.6	
Level of Service	A	A	A	A	D	
Approach Delay (s)	1.7			2.2	54.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

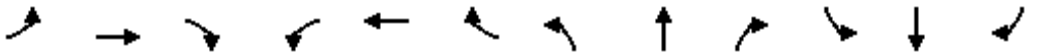
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	805	8	9	315	11	36	1	25	178	10	136
Future Volume (vph)	25	805	8	9	315	11	36	1	25	178	10	136
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1798	1531		1655			1653	
Flt Permitted		0.98	1.00		0.55	1.00		0.69			0.79	
Satd. Flow (perm)		1767	1531		997	1531		1174			1346	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	875	9	10	342	12	39	1	27	193	11	148
RTOR Reduction (vph)	0	0	5	0	0	6	0	23	0	0	19	0
Lane Group Flow (vph)	0	902	4	0	352	6	0	44	0	0	333	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		57.1	57.1		57.1	57.1		9.0			40.4	
Effective Green, g (s)		57.1	57.1		57.1	57.1		9.0			40.4	
Actuated g/C Ratio		0.48	0.48		0.48	0.48		0.08			0.34	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		840	728		474	728		88			453	
v/s Ratio Prot												
v/s Ratio Perm		c0.51	0.00		0.35	0.00		c0.04			c0.25	
v/c Ratio		1.07	0.01		0.74	0.01		0.50			0.74	
Uniform Delay, d1		31.4	16.5		25.5	16.5		53.3			35.1	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		52.8	0.0		10.1	0.0		1.6			5.3	
Delay (s)		84.3	16.5		35.6	16.6		54.9			40.4	
Level of Service		F	B		D	B		D			D	
Approach Delay (s)		83.6			34.9			54.9			40.4	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	63.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	92.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	671	24	383	340	18	9	546	677	286	807	49
Future Volume (veh/h)	55	671	24	383	340	18	9	546	677	286	807	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	729	0	416	370	0	10	593	736	311	877	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	1310		357	1504		233	1235	697	279	1606	97
Arrive On Green	0.26	0.26	0.00	0.10	0.42	0.00	0.35	0.35	0.35	0.08	0.47	0.47
Sat Flow, veh/h	999	5274	0	3456	3647	0	599	3554	1535	3456	3398	205
Grp Volume(v), veh/h	60	729	0	416	370	0	10	593	736	311	459	471
Grp Sat Flow(s),veh/h/ln	999	1702	0	1728	1777	0	599	1777	1535	1728	1777	1827
Q Serve(g_s), s	5.7	14.9	0.0	12.4	8.0	0.0	1.4	15.7	41.7	9.7	22.0	22.0
Cycle Q Clear(g_c), s	5.7	14.9	0.0	12.4	8.0	0.0	8.5	15.7	41.7	9.7	22.0	22.0
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	316	1310		357	1504		233	1235	697	279	840	863
V/C Ratio(X)	0.19	0.56		1.16	0.25		0.04	0.48	1.06	1.11	0.55	0.55
Avail Cap(c_a), veh/h	374	1604		357	1504		233	1235	697	279	840	863
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	38.7	0.0	53.8	22.3	0.0	30.8	30.7	33.1	55.2	22.5	22.5
Incr Delay (d2), s/veh	1.2	1.5	0.0	100.5	0.1	0.0	0.3	1.3	49.7	87.8	2.5	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.3	0.0	10.3	3.3	0.0	0.2	6.9	29.0	7.6	9.5	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.4	40.2	0.0	154.3	22.4	0.0	31.2	32.0	82.8	142.9	25.0	25.0
LnGrp LOS	D	D		F	C		C	C	F	F	C	C
Approach Vol, veh/h		789			786			1339			1241	
Approach Delay, s/veh		39.9			92.2			59.9			54.6	
Approach LOS		D			F			E			D	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	20.0	37.1	15.0	47.9		57.1		62.9				
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2				
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8				
Max Q Clear Time (g_c+I1), s	14.4	16.9	11.7	43.7		10.0		24.0				
Green Ext Time (p_c), s	0.0	11.0	0.0	0.0		2.6		8.8				

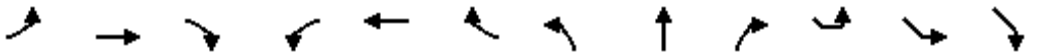
Intersection Summary			
HCM 6th Ctrl Delay		60.6	
HCM 6th LOS		E	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

EXISTING PLUS PROJECT



Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	327	1268	59	53	1387	201	100	320	70	375	552	264
Future Volume (vph)	327	1268	59	53	1387	201	100	320	70	375	552	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.78	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1159	1711	4916	1405	1711	3421	1191	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1159	1711	4916	1405	1711	3421	1191	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	352	1363	63	56	1460	212	106	340	74	417	613	293
RTOR Reduction (vph)	0	0	37	0	0	103	0	0	53	224	0	0
Lane Group Flow (vph)	352	1363	26	56	1460	109	106	340	21	193	613	293
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.9	49.6	49.6	6.4	40.1	40.1	25.0	25.0	33.4	12.0	12.0	12.0
Effective Green, g (s)	15.9	49.6	49.6	6.4	40.1	40.1	25.0	25.0	33.4	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.41	0.41	0.05	0.33	0.33	0.21	0.21	0.28	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	439	2031	479	91	1642	469	356	712	331	171	171	153
v/s Ratio Prot	c0.11	0.28		0.03	c0.30		0.06	c0.10	0.00	0.11	c0.36	0.19
v/s Ratio Perm			0.02			0.08			0.01			
v/c Ratio	0.80	0.67	0.05	0.62	0.89	0.23	0.30	0.48	0.06	1.13	3.58	1.92
Uniform Delay, d1	50.5	28.6	21.1	55.6	37.8	28.8	40.1	41.8	31.8	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.33	0.60	0.65	1.17	1.12	1.28	1.00	1.00	1.00
Incremental Delay, d2	9.6	1.8	0.2	6.5	6.0	0.9	0.1	0.1	0.0	107.4	1177.6	435.1
Delay (s)	60.1	30.4	21.3	80.2	28.9	19.7	47.2	46.8	40.7	161.4	1231.6	489.1
Level of Service	E	C	C	F	C	B	D	D	D	F	F	F
Approach Delay (s)		35.9			29.4			46.0			548.6	
Approach LOS		D			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	193.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	429
Future Volume (vph)	429
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	477
RTOR Reduction (vph)	243
Lane Group Flow (vph)	234
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.9
Effective Green, g (s)	27.9
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	346
v/s Ratio Prot	0.09
v/s Ratio Perm	0.07
v/c Ratio	0.68
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	4.1
Delay (s)	46.1
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	111	1155	383	15	82	1394	153	210	615	101	118	337
Future Volume (vph)	111	1155	383	15	82	1394	153	210	615	101	118	337
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Lane Util. Factor	0.97	0.91	1.00		1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.95		1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3319	4916	1448		1711	4916	1334	3385	3490	1500	1711	3356
Flt Permitted	0.95	1.00	1.00		0.16	1.00	1.00	0.95	1.00	1.00	0.48	1.00
Satd. Flow (perm)	3319	4916	1448		295	4916	1334	3385	3490	1500	868	3356
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%
Adj. Flow (vph)	119	1242	412	16	86	1467	161	111	324	53	137	392
RTOR Reduction (vph)	0	0	218	0	0	0	72	0	0	41	0	9
Lane Group Flow (vph)	119	1242	194	0	102	1467	89	111	324	12	137	432
Confl. Peds. (#/hr)			24				70			23		
Confl. Bikes (#/hr)			10				31			4		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Prot	NA	Perm		Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6			5	2		3	8		7	4
Permitted Phases			6				2			8	4	
Actuated Green, G (s)	11.6	37.2	37.2		24.4	50.0	50.0	10.0	26.8	26.8	36.8	26.8
Effective Green, g (s)	11.6	37.2	37.2		24.4	50.0	50.0	10.0	26.8	26.8	36.8	26.8
Actuated g/C Ratio	0.10	0.31	0.31		0.20	0.42	0.42	0.08	0.22	0.22	0.31	0.22
Clearance Time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Vehicle Extension (s)	3.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6
Lane Grp Cap (vph)	320	1523	448		59	2048	555	282	779	335	336	749
v/s Ratio Prot	0.04	c0.25				0.30		0.03	0.09		c0.03	c0.13
v/s Ratio Perm			0.13		c0.35		0.07			0.01	0.09	
v/c Ratio	0.37	0.82	0.43		1.73	0.72	0.16	0.39	0.42	0.04	0.41	0.58
Uniform Delay, d1	50.8	38.2	33.0		47.8	29.1	21.9	52.1	39.9	36.5	31.4	41.5
Progression Factor	0.94	0.97	1.00		1.00	0.89	0.52	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.5	0.3		386.3	2.1	0.6	0.9	0.8	0.1	0.8	2.0
Delay (s)	48.0	37.5	33.4		434.1	28.0	12.0	53.0	40.7	36.6	32.2	43.5
Level of Service	D	D	C		F	C	B	D	D	D	C	D
Approach Delay (s)		37.3				50.5			43.0			40.8
Approach LOS		D				D			D			D

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	42
Future Volume (vph)	42
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.86
Growth Factor (vph)	100%
Adj. Flow (vph)	49
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Confl. Bikes (#/hr)	2
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

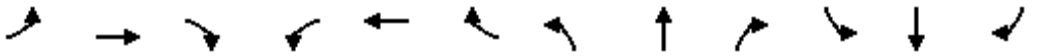
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	19	1191	15	14	1623	11	4	2	1	4	1
Future Volume (vph)	25	19	1191	15	14	1623	11	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1704	4916	1443	1703	4916	1383		1727	1481		1599
Flt Permitted		0.11	1.00	1.00	0.19	1.00	1.00		0.79	1.00		0.88
Satd. Flow (perm)		196	4916	1443	342	4916	1383		1415	1481		1432
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	27	21	1323	17	16	1803	12	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	6
Lane Group Flow (vph)	0	48	1323	14	16	1803	10	0	12	0	0	7
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		164	4121	1209	286	4121	1159		103	108		105
v/s Ratio Prot			0.27			c0.37						
v/s Ratio Perm		0.24		0.01	0.05		0.01		c0.01	0.00		0.00
v/c Ratio		0.29	0.32	0.01	0.06	0.44	0.01		0.12	0.00		0.06
Uniform Delay, d1		2.1	2.1	1.6	1.6	2.5	1.6		52.0	51.5		51.8
Progression Factor		2.61	2.66	4.72	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		3.5	0.2	0.0	0.4	0.3	0.0		0.5	0.0		0.2
Delay (s)		8.9	5.9	7.5	2.0	2.8	1.6		52.5	51.5		52.0
Level of Service		A	A	A	A	A	A		D	D		D
Approach Delay (s)			6.0			2.8			52.3			52.0
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1070	17	50	1464	154	111	195	13	95	71	18
Future Volume (veh/h)	65	1070	17	50	1464	154	111	195	13	95	71	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.98		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	1163	18	54	1591	167	121	212	14	103	77	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	184	3194	948	356	3194	937	174	266	17	188	132	31
Arrive On Green	1.00	1.00	1.00	0.63	0.63	0.63	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	273	5106	1515	473	5106	1497	486	968	61	520	483	111
Grp Volume(v), veh/h	71	1163	18	54	1591	167	347	0	0	200	0	0
Grp Sat Flow(s),veh/h/ln	273	1702	1515	473	1702	1497	1516	0	0	1114	0	0
Q Serve(g_s), s	14.5	0.0	0.0	5.8	20.3	5.6	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	34.8	0.0	0.0	5.8	20.3	5.6	26.3	0.0	0.0	20.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.51		0.10
Lane Grp Cap(c), veh/h	184	3194	948	356	3194	937	456	0	0	351	0	0
V/C Ratio(X)	0.39	0.36	0.02	0.15	0.50	0.18	0.76	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	184	3194	948	356	3194	937	650	0	0	519	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.37	0.37	0.37	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.7	0.0	0.0	9.5	12.2	9.5	41.1	0.0	0.0	38.3	0.0	0.0
Incr Delay (d2), s/veh	6.0	0.3	0.0	0.3	0.2	0.2	3.3	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.1	0.0	0.6	7.1	1.8	10.2	0.0	0.0	5.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.7	0.3	0.0	9.8	12.4	9.6	44.4	0.0	0.0	39.7	0.0	0.0
LnGrp LOS	B	A	A	A	B	A	D	A	A	D	A	A
Approach Vol, veh/h		1252			1812			347			200	
Approach Delay, s/veh		0.9			12.1			44.4			39.7	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.6		39.4		80.6		39.4				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		22.3		22.1		36.8		28.3				
Green Ext Time (p_c), s		26.8		1.3		14.9		2.2				

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

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	865	113	138	1160	43	158	1591	55	45	805	263
Future Volume (veh/h)	260	865	113	138	1160	43	158	1591	55	45	805	263
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	299	994	130	153	1289	0	180	1808	62	47	847	277
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1312	397	303	1587		290	1869	64	182	1331	432
Arrive On Green	0.03	0.08	0.08	0.12	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1544	1781	5106	1585	1781	5064	173	1781	3781	1228
Grp Volume(v), veh/h	299	994	130	153	1289	0	180	1215	655	47	762	362
Grp Sat Flow(s),veh/h/ln	1728	1702	1544	1781	1702	1585	1781	1702	1834	1781	1702	1605
Q Serve(g_s), s	8.6	22.8	7.4	3.6	27.9	0.0	7.6	42.0	42.1	1.9	22.4	22.6
Cycle Q Clear(g_c), s	8.6	22.8	7.4	3.6	27.9	0.0	7.6	42.0	42.1	1.9	22.4	22.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.77
Lane Grp Cap(c), veh/h	408	1312	397	303	1587		290	1256	677	182	1198	565
V/C Ratio(X)	0.73	0.76	0.33	0.51	0.81		0.62	0.97	0.97	0.26	0.64	0.64
Avail Cap(c_a), veh/h	408	1413	427	303	1587		290	1257	677	213	1257	593
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	51.3	27.4	46.3	38.1	0.0	24.6	37.1	37.2	28.2	32.5	32.5
Incr Delay (d2), s/veh	6.2	3.9	2.0	1.4	4.7	0.0	4.0	18.1	27.1	0.7	1.0	2.2
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	4.2	10.9	3.1	4.2	12.0	0.0	3.4	19.9	23.1	0.8	9.1	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	55.1	29.4	47.7	42.8	0.0	28.7	55.3	64.2	29.0	33.5	34.7
LnGrp LOS	D	E	C	D	D		C	E	E	C	C	C
Approach Vol, veh/h		1423			1442			2050			1171	
Approach Delay, s/veh		51.3			43.3			55.8			33.7	
Approach LOS		D			D			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	51.0	20.5	36.6	14.0	48.9	14.0	43.1
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	13.9	44.1	5.6	24.8	9.6	24.6	10.6	29.9
Green Ext Time (p_c), s	0.0	0.2	0.1	6.0	0.0	7.3	0.0	4.2

Intersection Summary	
HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	8	21	900	751	33
Future Volume (veh/h)	14	8	21	900	751	33
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	9	23	978	1502	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	77	68	347	2842	2502	1056
Arrive On Green	0.04	0.04	0.05	0.80	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	3647	3705	1524
Grp Volume(v), veh/h	15	9	23	978	1502	66
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1524
Q Serve(g_s), s	0.5	0.4	0.2	5.1	14.6	0.9
Cycle Q Clear(g_c), s	0.5	0.4	0.2	5.1	14.6	0.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	77	68	347	2842	2502	1056
V/C Ratio(X)	0.20	0.13	0.07	0.34	0.60	0.06
Avail Cap(c_a), veh/h	768	683	716	3175	3225	1362
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	30.9	30.8	4.0	1.8	5.4	3.3
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.2	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.5	3.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.3	31.1	4.0	2.0	5.9	3.3
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	24			1001	1568	
Approach Delay, s/veh	31.2			2.0	5.8	
Approach LOS	C			A	A	

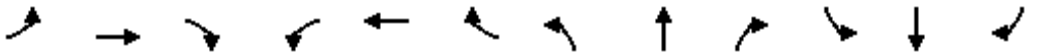
Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	58.7		8.1	7.1	51.6
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	7.1		2.5	2.2	16.6
Green Ext Time (p_c), s	18.0		0.0	0.0	29.7

Intersection Summary	
HCM 6th Ctrl Delay	4.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	294	16	66	438	199	21	264	74	135	182	41
Future Volume (vph)	71	294	16	66	438	199	21	264	74	135	182	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1716		1711	1801	1531	1711	1801	1412
Flt Permitted	0.23	1.00	1.00	0.51	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	418	1801	1397	927	1716		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	320	17	72	476	216	23	287	80	147	198	45
RTOR Reduction (vph)	0	0	8	0	12	0	0	0	51	0	0	0
Lane Group Flow (vph)	77	320	9	72	680	0	23	287	29	147	198	45
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	66.2	66.2	66.2	66.2	66.2		6.0	25.3	25.3	13.2	32.5	32.5
Effective Green, g (s)	66.2	66.2	66.2	66.2	66.2		6.0	25.3	25.3	13.2	32.5	32.5
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55		0.05	0.21	0.21	0.11	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	230	993	770	511	946		85	379	322	188	487	382
v/s Ratio Prot		0.18			c0.40		0.01	c0.16		c0.09	0.11	
v/s Ratio Perm	0.18		0.01	0.08					0.02			0.03
v/c Ratio	0.33	0.32	0.01	0.14	0.72		0.27	0.76	0.09	0.78	0.41	0.12
Uniform Delay, d1	14.8	14.7	12.1	13.1	20.0		54.9	44.5	38.1	52.0	35.8	33.0
Progression Factor	1.00	1.00	1.00	0.60	0.70		1.00	1.00	1.00	1.50	0.70	0.53
Incremental Delay, d2	3.9	0.9	0.0	0.5	4.4		0.6	7.5	0.0	1.8	0.0	0.0
Delay (s)	18.7	15.5	12.2	8.4	18.4		55.5	52.0	38.1	80.0	25.3	17.4
Level of Service	B	B	B	A	B		E	D	D	E	C	B
Approach Delay (s)		16.0			17.5			49.3			45.0	
Approach LOS		B			B			D			D	

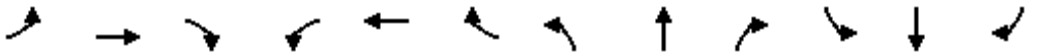
Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	389	133	101	625	64	65
Future Volume (vph)	389	133	101	625	64	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.47	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	845	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	423	145	110	679	70	71
RTOR Reduction (vph)	0	19	0	0	0	60
Lane Group Flow (vph)	423	126	110	679	70	11
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.8	88.8	101.8	101.8	8.9	17.9
Effective Green, g (s)	88.8	88.8	101.8	101.8	8.9	17.9
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.07	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1332	1132	781	1527	126	279
v/s Ratio Prot	0.23		0.01	c0.38		0.00
v/s Ratio Perm		0.08	0.11		c0.04	0.00
v/c Ratio	0.32	0.11	0.14	0.44	0.56	0.04
Uniform Delay, d1	5.3	4.4	1.8	2.2	53.6	43.7
Progression Factor	1.66	2.31	0.50	0.47	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.0	0.7	3.0	0.0
Delay (s)	9.4	10.4	0.9	1.7	56.6	43.7
Level of Service	A	B	A	A	E	D
Approach Delay (s)	9.6			1.6	50.1	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	264	106	106	500	145	132	822	68	72	586	87
Future Volume (vph)	86	264	106	106	500	145	132	822	68	72	586	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1483	1711	3421	1304
Flt Permitted	0.19	1.00	1.00	0.48	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	351	1801	1280	860	1801	1531	1711	3421	1483	1711	3421	1304
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	287	115	115	543	158	143	893	74	78	637	95
RTOR Reduction (vph)	0	0	71	0	0	0	0	0	47	0	0	64
Lane Group Flow (vph)	93	287	44	115	543	158	143	893	27	78	637	31
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	55.4	45.6	45.6	55.4	45.6	45.6	14.2	34.3	44.1	8.9	28.8	38.6
Effective Green, g (s)	55.4	45.6	45.6	55.4	45.6	45.6	14.2	34.3	44.1	8.9	28.8	38.6
Actuated g/C Ratio	0.46	0.38	0.38	0.46	0.38	0.38	0.12	0.29	0.37	0.07	0.24	0.32
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	273	684	486	466	684	581	202	977	545	126	821	419
v/s Ratio Prot	c0.03	0.16		0.02	c0.30		0.08	c0.26	0.00	0.05	c0.19	0.01
v/s Ratio Perm	0.13		0.03	0.09		0.10			0.01			0.02
v/c Ratio	0.34	0.42	0.09	0.25	0.79	0.27	0.71	0.91	0.05	0.62	0.78	0.07
Uniform Delay, d1	21.6	27.4	23.9	19.0	33.0	25.7	50.9	41.4	24.5	53.9	42.6	28.3
Progression Factor	0.53	0.71	1.00	0.80	0.85	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.8	0.4	0.0	4.5	0.5	8.9	13.3	0.0	6.2	5.4	0.0
Delay (s)	11.7	21.3	24.2	15.2	32.6	22.0	59.8	54.7	24.5	60.1	48.0	28.3
Level of Service	B	C	C	B	C	C	E	D	C	E	D	C
Approach Delay (s)		20.2			28.1			53.3			46.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	348	25	14	705	30	38	0	9	0	0	9
Future Volume (veh/h)	58	348	25	14	705	30	38	0	9	0	0	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	378	27	28	1410	33	41	0	10	0	0	10
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	1495	1267	907	1624	1376	127	0	76	0	89	76
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	370	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Grp Volume(v), veh/h	63	378	27	28	1410	33	41	0	10	0	0	10
Grp Sat Flow(s),veh/h/ln	370	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Q Serve(g_s), s	10.9	0.0	0.0	0.3	48.5	0.3	3.4	0.0	0.7	0.0	0.0	0.7
Cycle Q Clear(g_c), s	51.1	0.0	0.0	0.3	48.5	0.3	3.4	0.0	0.7	0.0	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	232	1495	1267	907	1624	1376	127	0	76	0	89	76
V/C Ratio(X)	0.27	0.25	0.02	0.03	0.87	0.02	0.32	0.00	0.13	0.00	0.00	0.13
Avail Cap(c_a), veh/h	232	1495	1267	1066	1624	1376	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	10.7	0.0	0.0	1.4	4.2	1.1	56.1	0.0	54.8	0.0	0.0	54.8
Incr Delay (d2), s/veh	2.7	0.4	0.0	0.0	6.6	0.0	0.5	0.0	0.3	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	0.0	0.1	10.4	0.1	1.2	0.0	0.3	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.4	0.0	1.4	10.8	1.1	56.6	0.0	55.1	0.0	0.0	55.1
LnGrp LOS	B	A	A	A	B	A	E	A	E	A	A	E
Approach Vol, veh/h		468			1471			51			10	
Approach Delay, s/veh		2.1			10.4			56.3			55.1	
Approach LOS		A			B			E			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		109.5		10.5	8.2	101.2		10.5				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		50.5		5.4	2.3	53.1		2.7				
Green Ext Time (p_c), s		21.9		0.1	0.0	1.2		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		9.9
HCM 6th LOS		A

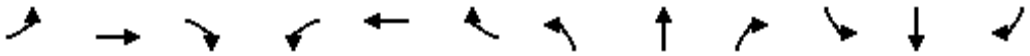
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	18	6	775	49	8
Future Volume (vph)	346	18	6	775	49	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1693	
Flt Permitted	1.00	1.00	0.54	1.00	0.96	
Satd. Flow (perm)	1801	1531	969	1801	1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	20	7	842	53	9
RTOR Reduction (vph)	0	3	0	0	7	0
Lane Group Flow (vph)	376	17	7	842	55	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	102.7	102.7	102.7	102.7	8.0	
Effective Green, g (s)	102.7	102.7	102.7	102.7	8.0	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.07	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1541	1310	829	1541	112	
v/s Ratio Prot	0.21			c0.47		
v/s Ratio Perm		0.01	0.01		c0.03	
v/c Ratio	0.24	0.01	0.01	0.55	0.50	
Uniform Delay, d1	1.6	1.3	1.3	2.3	54.1	
Progression Factor	1.87	2.55	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.0	0.0	1.4	1.3	
Delay (s)	3.3	3.2	1.3	3.7	55.3	
Level of Service	A	A	A	A	E	
Approach Delay (s)	3.3			3.7	55.3	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	357	24	6	841	14	52	1	20	55	22	137
Future Volume (vph)	16	357	24	6	841	14	52	1	20	55	22	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.91	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.99	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1624	
Flt Permitted		0.86	1.00		1.00	1.00		0.37			0.89	
Satd. Flow (perm)		1547	1531		1795	1531		637			1467	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	388	26	7	914	15	57	1	22	60	24	149
RTOR Reduction (vph)	0	0	10	0	0	6	0	12	0	0	59	0
Lane Group Flow (vph)	0	405	16	0	921	9	0	68	0	0	174	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		74.1	74.1		74.1	74.1		14.2			18.2	
Effective Green, g (s)		74.1	74.1		74.1	74.1		14.2			18.2	
Actuated g/C Ratio		0.62	0.62		0.62	0.62		0.12			0.15	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		955	945		1108	945		75			222	
v/s Ratio Prot												
v/s Ratio Perm		0.26	0.01		c0.51	0.01		c0.11			c0.12	
v/c Ratio		0.42	0.02		0.83	0.01		0.90			0.79	
Uniform Delay, d1		11.9	8.9		18.0	8.8		52.2			49.0	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		1.4	0.0		7.3	0.0		70.0			15.4	
Delay (s)		13.3	8.9		25.3	8.9		122.2			64.4	
Level of Service		B	A		C	A		F			E	
Approach Delay (s)		13.0			25.1			122.2			64.4	
Approach LOS		B			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	209	13	683	705	29	15	858	410	170	528	30
Future Volume (veh/h)	40	209	13	683	705	29	15	858	410	170	528	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	227	0	742	766	0	16	933	446	185	574	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	997		357	1286		399	1492	810	241	1821	105
Arrive On Green	0.20	0.20	0.00	0.10	0.36	0.00	0.42	0.42	0.42	0.07	0.53	0.53
Sat Flow, veh/h	695	5274	0	3456	3647	0	808	3554	1540	3456	3410	196
Grp Volume(v), veh/h	43	227	0	742	766	0	16	933	446	185	299	308
Grp Sat Flow(s),veh/h/ln	695	1702	0	1728	1777	0	808	1777	1540	1728	1777	1829
Q Serve(g_s), s	6.4	4.5	0.0	12.4	21.0	0.0	1.4	24.8	23.3	6.3	11.3	11.3
Cycle Q Clear(g_c), s	7.5	4.5	0.0	12.4	21.0	0.0	1.4	24.8	23.3	6.3	11.3	11.3
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	190	997		357	1286		399	1492	810	241	949	977
V/C Ratio(X)	0.23	0.23		2.08	0.60		0.04	0.63	0.55	0.77	0.31	0.32
Avail Cap(c_a), veh/h	272	1604		357	1286		399	1492	810	279	949	977
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	40.7	0.0	53.8	31.1	0.0	20.6	27.4	19.2	54.9	15.7	15.7
Incr Delay (d2), s/veh	2.4	0.5	0.0	494.6	0.8	0.0	0.2	2.0	2.7	10.5	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.9	0.0	29.9	9.0	0.0	0.3	10.7	8.6	3.1	4.7	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	41.1	0.0	548.4	31.9	0.0	20.8	29.4	21.9	65.4	16.5	16.5
LnGrp LOS	D	D		F	C		C	C	C	E	B	B
Approach Vol, veh/h		270			1508			1395			792	
Approach Delay, s/veh		41.7			286.0			26.9			27.9	
Approach LOS		D			F			C			C	

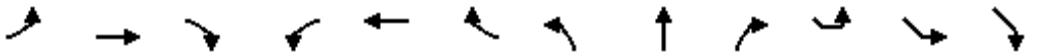
Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	29.7	13.7	56.6		49.7		70.3
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	9.5	8.3	26.8		23.0		13.3
Green Ext Time (p_c), s	0.0	4.4	0.1	5.6		4.8		5.6

Intersection Summary	
HCM 6th Ctrl Delay	126.7
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	189	1309	63	142	1461	166	102	302	220	150	409	187
Future Volume (vph)	189	1309	63	142	1461	166	102	302	220	150	409	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1157	1711	4916	1409	1711	3421	1250	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1157	1711	4916	1409	1711	3421	1250	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	203	1408	68	149	1538	175	109	321	234	167	454	208
RTOR Reduction (vph)	0	0	44	0	0	94	0	0	67	139	0	0
Lane Group Flow (vph)	203	1408	24	149	1538	81	109	321	167	28	454	208
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.4	42.9	42.9	13.1	47.6	47.6	24.8	24.8	39.9	12.2	12.2	12.2
Effective Green, g (s)	8.4	42.9	42.9	13.1	47.6	47.6	24.8	24.8	39.9	12.2	12.2	12.2
Actuated g/C Ratio	0.07	0.36	0.36	0.11	0.40	0.40	0.21	0.21	0.33	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	232	1757	413	186	1950	558	353	707	415	173	173	155
v/s Ratio Prot	0.06	0.29		c0.09	c0.31		0.06	c0.09	0.04	0.02	c0.27	0.14
v/s Ratio Perm			0.02			0.06			0.09			
v/c Ratio	0.88	0.80	0.06	0.80	0.79	0.15	0.31	0.45	0.40	0.16	2.62	1.34
Uniform Delay, d1	55.3	34.7	25.3	52.2	31.8	23.2	40.3	41.7	30.9	49.2	53.9	53.9
Progression Factor	1.00	1.00	1.00	1.30	0.63	0.69	0.82	0.83	0.86	1.00	1.00	1.00
Incremental Delay, d2	27.8	4.0	0.3	18.0	2.9	0.5	0.2	0.1	0.2	0.6	747.4	190.7
Delay (s)	83.1	38.7	25.6	86.1	22.9	16.6	33.0	34.6	26.6	49.8	801.3	244.6
Level of Service	F	D	C	F	C	B	C	C	C	D	F	F
Approach Delay (s)		43.5			27.3			31.5			375.1	
Approach LOS		D			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	108.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	304
Future Volume (vph)	304
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1462
Flt Permitted	1.00
Satd. Flow (perm)	1462
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	338
RTOR Reduction (vph)	258
Lane Group Flow (vph)	80
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	20.6
Effective Green, g (s)	20.6
Actuated g/C Ratio	0.17
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	250
v/s Ratio Prot	0.02
v/s Ratio Perm	0.03
v/c Ratio	0.32
Uniform Delay, d1	43.6
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	43.8
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	70	1529	337	3	132	1304	85	210	304	207	112	426
Future Volume (vph)	70	1529	337	3	132	1304	85	210	304	207	112	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Lane Util. Factor	0.97	0.91	1.00		1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.95		1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3319	4916	1448		1711	4916	1334	3385	3490	1501	1711	3370
Flt Permitted	0.95	1.00	1.00		0.18	1.00	1.00	0.95	1.00	1.00	0.65	1.00
Satd. Flow (perm)	3319	4916	1448		330	4916	1334	3385	3490	1501	1172	3370
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%
Adj. Flow (vph)	75	1644	362	3	139	1373	89	111	160	109	130	495
RTOR Reduction (vph)	0	0	144	0	0	0	52	0	0	83	0	7
Lane Group Flow (vph)	75	1644	218	0	142	1373	37	111	160	26	130	535
Confl. Peds. (#/hr)			24				70			23		
Confl. Bikes (#/hr)			10				31			4		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Prot	NA	Perm		Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6			5	2		3	8		7	4
Permitted Phases			6				2			8	4	
Actuated Green, G (s)	9.6	37.6	37.6		21.8	49.8	49.8	10.0	29.0	29.0	39.0	29.0
Effective Green, g (s)	9.6	37.6	37.6		21.8	49.8	49.8	10.0	29.0	29.0	39.0	29.0
Actuated g/C Ratio	0.08	0.31	0.31		0.18	0.41	0.41	0.08	0.24	0.24	0.32	0.24
Clearance Time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Vehicle Extension (s)	3.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6
Lane Grp Cap (vph)	265	1540	453		59	2040	553	282	843	362	425	814
v/s Ratio Prot	0.02	c0.33				0.28		c0.03	0.05		0.03	c0.16
v/s Ratio Perm			0.15		c0.43		0.03			0.02	0.07	
v/c Ratio	0.28	1.07	0.48		2.41	0.67	0.07	0.39	0.19	0.07	0.31	0.66
Uniform Delay, d1	52.0	41.2	33.3		49.1	28.5	21.1	52.1	36.2	35.1	29.6	41.0
Progression Factor	0.84	0.85	0.60		1.00	0.82	0.37	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	32.0	0.3		679.0	1.7	0.2	0.9	0.2	0.2	0.4	2.9
Delay (s)	43.9	67.1	20.4		728.1	25.1	8.0	53.0	36.4	35.3	30.0	43.9
Level of Service	D	E	C		F	C	A	D	D	D	C	D
Approach Delay (s)		58.2				86.4			40.9			41.2
Approach LOS		E				F			D			D

Intersection Summary			
HCM 2000 Control Delay	63.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	40
Future Volume (vph)	40
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.86
Growth Factor (vph)	100%
Adj. Flow (vph)	47
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Confl. Bikes (#/hr)	2
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	114	16	1860	39	113	1281	10	21	1	15	114	5
Future Volume (vph)	114	16	1860	39	113	1281	10	21	1	15	114	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		0.99	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1700	4916	1442	1711	4916	1380		1704	1486		1657
Flt Permitted		0.16	1.00	1.00	0.07	1.00	1.00		0.70	1.00		0.75
Satd. Flow (perm)		283	4916	1442	123	4916	1380		1247	1486		1293
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	124	18	2067	43	126	1423	11	40	2	28	139	6
RTOR Reduction (vph)	0	0	0	7	0	0	3	0	0	12	0	11
Lane Group Flow (vph)	0	142	2067	36	126	1423	8	0	42	16	0	174
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		87.0	87.0	87.0	87.0	87.0	87.0		22.4	22.4		22.4
Effective Green, g (s)		87.0	87.0	87.0	87.0	87.0	87.0		22.4	22.4		22.4
Actuated g/C Ratio		0.72	0.72	0.72	0.72	0.72	0.72		0.19	0.19		0.19
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		205	3564	1045	89	3564	1000		232	277		241
v/s Ratio Prot			0.42			0.29						
v/s Ratio Perm		0.50		0.02	c1.02		0.01		0.03	0.01		c0.13
v/c Ratio		0.69	0.58	0.03	1.42	0.40	0.01		0.18	0.06		0.72
Uniform Delay, d1		9.1	7.8	4.7	16.5	6.4	4.6		41.1	40.1		45.9
Progression Factor		1.82	1.54	1.97	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		12.1	0.5	0.0	240.6	0.3	0.0		0.4	0.1		10.3
Delay (s)		28.7	12.5	9.2	257.1	6.7	4.6		41.5	40.2		56.2
Level of Service		C	B	A	F	A	A		D	D		E
Approach Delay (s)			13.5			26.9			41.0			56.2
Approach LOS			B			C			D			E

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	33
Future Volume (vph)	33
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	40
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	1770	63	79	1163	36	26	32	12	174	108	4
Future Volume (veh/h)	66	1770	63	79	1163	36	26	32	12	174	108	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	1924	68	86	1264	39	28	35	13	189	117	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	3274	972	152	3274	961	170	203	68	289	149	5
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	422	5106	1516	217	5106	1499	497	785	264	930	576	20
Grp Volume(v), veh/h	72	1924	68	86	1264	39	76	0	0	310	0	0
Grp Sat Flow(s),veh/h/ln	422	1702	1516	217	1702	1499	1546	0	0	1525	0	0
Q Serve(g_s), s	11.8	26.0	2.0	45.4	14.2	1.2	0.0	0.0	0.0	18.4	0.0	0.0
Cycle Q Clear(g_c), s	25.9	26.0	2.0	71.4	14.2	1.2	4.0	0.0	0.0	22.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.37		0.17	0.61		0.01
Lane Grp Cap(c), veh/h	281	3274	972	152	3274	961	441	0	0	443	0	0
V/C Ratio(X)	0.26	0.59	0.07	0.57	0.39	0.04	0.17	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	281	3274	972	152	3274	961	651	0	0	647	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.4	12.4	8.1	32.9	10.3	7.9	34.4	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.8	0.1	12.0	0.3	0.1	0.2	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	9.1	0.7	2.8	4.9	0.4	1.8	0.0	0.0	8.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	13.2	8.2	45.0	10.5	8.0	34.6	0.0	0.0	43.1	0.0	0.0
LnGrp LOS	B	B	A	D	B	A	C	A	A	D	A	A
Approach Vol, veh/h		2064			1389			76			310	
Approach Delay, s/veh		13.2			12.6			34.6			43.1	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.5		37.5		82.5		37.5				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		73.4		24.5		28.0		6.0				
Green Ext Time (p_c), s		0.0		1.9		27.0		0.5				

Intersection Summary		
HCM 6th Ctrl Delay	15.8	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	1418	108	116	787	11	65	793	46	120	910	358
Future Volume (veh/h)	290	1418	108	116	787	11	65	793	46	120	910	358
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	333	1630	124	129	874	0	74	901	52	126	958	377
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	437	1413	428	292	1729		231	1603	92	308	1181	464
Arrive On Green	0.03	0.09	0.09	0.13	0.34	0.00	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4930	284	1781	3567	1402
Grp Volume(v), veh/h	333	1630	124	129	874	0	74	621	332	126	914	421
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1810	1781	1702	1566
Q Serve(g_s), s	9.4	33.2	7.0	3.8	16.4	0.0	3.1	18.1	18.2	5.4	29.5	29.5
Cycle Q Clear(g_c), s	9.4	33.2	7.0	3.8	16.4	0.0	3.1	18.1	18.2	5.4	29.5	29.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.90
Lane Grp Cap(c), veh/h	437	1413	428	292	1729		231	1107	589	308	1127	518
V/C Ratio(X)	0.76	1.15	0.29	0.44	0.51		0.32	0.56	0.56	0.41	0.81	0.81
Avail Cap(c_a), veh/h	437	1413	428	292	1729		243	1257	668	310	1257	578
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.74	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	54.5	26.6	46.2	31.7	0.0	26.7	33.4	33.5	24.4	36.7	36.7
Incr Delay (d2), s/veh	5.8	75.7	1.3	1.0	1.1	0.0	0.8	1.0	1.8	0.9	3.8	7.9
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	4.5	25.0	2.8	3.5	6.7	0.0	1.3	7.4	8.1	2.3	12.4	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	130.2	27.9	47.2	32.7	0.0	27.4	34.4	35.3	25.3	40.5	44.6
LnGrp LOS	D	F	C	D	C		C	C	D	C	D	D
Approach Vol, veh/h		2087			1003			1027			1461	
Approach Delay, s/veh		110.7			34.6			34.2			40.4	
Approach LOS		F			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	45.7	21.4	39.0	13.2	46.4	14.0	46.4
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.4	20.2	5.8	35.2	5.1	31.5	11.4	18.4
Green Ext Time (p_c), s	0.1	11.3	0.1	0.0	0.0	7.0	0.0	8.0

Intersection Summary	
HCM 6th Ctrl Delay	64.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

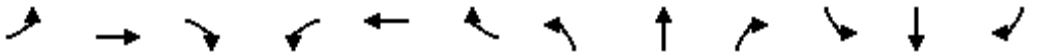
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	31	35	689	880	43
Future Volume (veh/h)	14	31	35	689	880	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	34	38	749	1760	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	119	106	303	2844	2474	1044
Arrive On Green	0.07	0.07	0.06	0.80	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	3647	3705	1523
Grp Volume(v), veh/h	15	34	38	749	1760	86
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1523
Q Serve(g_s), s	0.6	1.6	0.4	4.2	23.7	1.5
Cycle Q Clear(g_c), s	0.6	1.6	0.4	4.2	23.7	1.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	119	106	303	2844	2474	1044
V/C Ratio(X)	0.13	0.32	0.13	0.26	0.71	0.08
Avail Cap(c_a), veh/h	649	578	571	2844	2727	1151
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.7	35.2	7.0	2.0	7.6	4.1
Incr Delay (d2), s/veh	0.2	0.6	0.1	0.1	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.2	0.6	6.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.9	35.8	7.0	2.1	8.7	4.2
LnGrp LOS	C	D	A	A	A	A
Approach Vol, veh/h	49			787	1846	
Approach Delay, s/veh	35.5			2.3	8.5	
Approach LOS	D			A	A	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	68.6		10.5	9.1	59.5
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	6.2		3.6	2.4	25.7
Green Ext Time (p_c), s	12.4		0.1	0.0	28.5

Intersection Summary	
HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	494	35	56	222	148	17	201	59	132	284	65
Future Volume (vph)	247	494	35	56	222	148	17	201	59	132	284	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.94	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1613	1801	1397	1711	1692		1711	1801	1531	1711	1801	1412
Flt Permitted	0.45	1.00	1.00	0.35	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	771	1801	1397	635	1692		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	537	38	61	241	161	18	218	64	143	309	71
RTOR Reduction (vph)	0	0	16	0	17	0	0	0	52	0	0	0
Lane Group Flow (vph)	268	537	22	61	385	0	18	218	12	143	309	71
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	68.3	68.3	68.3	68.3	68.3		4.0	23.2	23.2	13.2	32.4	32.4
Effective Green, g (s)	68.3	68.3	68.3	68.3	68.3		4.0	23.2	23.2	13.2	32.4	32.4
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.03	0.19	0.19	0.11	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	438	1025	795	361	963		57	348	295	188	486	381
v/s Ratio Prot		0.30			0.23		0.01	0.12		c0.08	c0.17	
v/s Ratio Perm	c0.35		0.02	0.10					0.01			0.05
v/c Ratio	0.61	0.52	0.03	0.17	0.40		0.32	0.63	0.04	0.76	0.64	0.19
Uniform Delay, d1	17.1	15.9	11.3	12.3	14.4		56.7	44.4	39.4	51.9	38.6	33.7
Progression Factor	1.00	1.00	1.00	1.46	1.50		1.00	1.00	1.00	0.95	0.89	0.95
Incremental Delay, d2	6.3	1.9	0.1	1.0	1.2		1.2	2.5	0.0	9.5	1.2	0.1
Delay (s)	23.3	17.8	11.4	19.0	22.9		57.8	47.0	39.4	58.5	35.8	32.1
Level of Service	C	B	B	B	C		E	D	D	E	D	C
Approach Delay (s)		19.3			22.4			46.0			41.5	
Approach LOS		B			C			D			D	

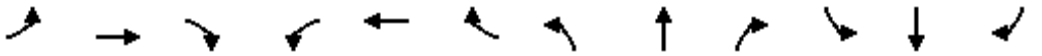
Intersection Summary			
HCM 2000 Control Delay	29.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	610	78	87	356	70	97
Future Volume (vph)	610	78	87	356	70	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.34	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	607	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	663	85	95	387	76	105
RTOR Reduction (vph)	0	7	0	0	0	89
Lane Group Flow (vph)	663	78	95	387	76	16
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.6	88.6	101.6	101.6	9.1	18.1
Effective Green, g (s)	88.6	88.6	101.6	101.6	9.1	18.1
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1329	1130	596	1524	129	281
v/s Ratio Prot	c0.37		0.01	c0.21		0.00
v/s Ratio Perm		0.05	0.12		c0.04	0.01
v/c Ratio	0.50	0.07	0.16	0.25	0.59	0.06
Uniform Delay, d1	6.5	4.3	2.9	1.8	53.6	43.6
Progression Factor	0.82	0.82	1.94	2.15	1.00	1.00
Incremental Delay, d2	1.2	0.1	0.0	0.3	4.4	0.0
Delay (s)	6.5	3.7	5.6	4.2	58.0	43.7
Level of Service	A	A	A	A	E	D
Approach Delay (s)	6.2			4.5	49.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	389	171	220	279	124	128	464	252	88	696	102
Future Volume (vph)	56	389	171	220	279	124	128	464	252	88	696	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1498	1711	3421	1357
Flt Permitted	0.37	1.00	1.00	0.19	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	665	1801	1280	340	1801	1531	1711	3421	1498	1711	3421	1357
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	423	186	239	303	135	139	504	274	96	757	111
RTOR Reduction (vph)	0	0	135	0	0	0	0	0	88	0	0	62
Lane Group Flow (vph)	61	423	51	239	303	135	139	504	186	96	757	49
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	55.6	33.0	33.0	55.6	33.0	33.0	12.1	31.6	54.2	11.4	30.7	53.3
Effective Green, g (s)	55.6	33.0	33.0	55.6	33.0	33.0	12.1	31.6	54.2	11.4	30.7	53.3
Actuated g/C Ratio	0.46	0.28	0.28	0.46	0.28	0.28	0.10	0.26	0.45	0.10	0.26	0.44
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	504	495	352	415	495	421	172	900	676	162	875	602
v/s Ratio Prot	0.02	c0.23		c0.11	0.17		c0.08	0.15	0.05	0.06	c0.22	0.02
v/s Ratio Perm	0.03		0.04	0.16		0.09			0.07			0.02
v/c Ratio	0.12	0.85	0.15	0.58	0.61	0.32	0.81	0.56	0.27	0.59	0.87	0.08
Uniform Delay, d1	18.5	41.2	32.9	22.5	37.9	34.6	52.8	38.2	20.6	52.1	42.7	19.2
Progression Factor	0.63	0.85	1.88	0.99	0.92	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	15.6	0.8	0.9	4.2	1.5	22.4	1.3	0.1	3.8	9.7	0.0
Delay (s)	11.6	50.7	62.4	23.1	39.1	32.9	75.2	39.5	20.7	55.9	52.4	19.3
Level of Service	B	D	E	C	D	C	E	D	C	E	D	B
Approach Delay (s)		50.4			32.2			39.3			48.9	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	723	17	23	549	2	34	0	21	7	0	54
Future Volume (veh/h)	4	723	17	23	549	2	34	0	21	7	0	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	786	18	46	1098	2	37	0	23	8	0	59
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	1339	1134	627	1487	1260	62	0	192	62	0	192
Arrive On Green	1.00	1.00	1.00	0.05	0.79	0.79	0.12	0.00	0.12	0.12	0.00	0.12
Sat Flow, veh/h	513	1870	1585	1781	1870	1585	16	0	1585	16	0	1585
Grp Volume(v), veh/h	4	786	18	46	1098	2	37	0	23	8	0	59
Grp Sat Flow(s),veh/h/ln	513	1870	1585	1781	1870	1585	16	0	1585	16	0	1585
Q Serve(g_s), s	0.3	0.0	0.0	0.7	35.0	0.0	0.2	0.0	1.6	0.2	0.0	4.1
Cycle Q Clear(g_c), s	25.1	0.0	0.0	0.7	35.0	0.0	14.5	0.0	1.6	14.5	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	1339	1134	627	1487	1260	62	0	192	62	0	192
V/C Ratio(X)	0.01	0.59	0.02	0.07	0.74	0.00	0.60	0.00	0.12	0.13	0.00	0.31
Avail Cap(c_a), veh/h	321	1339	1134	768	1487	1260	293	0	465	301	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	3.6	0.0	0.0	3.0	6.1	2.5	60.0	0.0	47.0	60.0	0.0	48.1
Incr Delay (d2), s/veh	0.1	1.3	0.0	0.0	3.3	0.0	3.4	0.0	0.1	0.3	0.0	0.3
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	0.0	0.5	0.0	0.2	11.3	0.0	1.2	0.0	0.6	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.7	1.3	0.0	3.1	9.4	2.5	63.4	0.0	47.1	60.3	0.0	48.5
LnGrp LOS	A	A	A	A	A	A	E	A	D	E	A	D
Approach Vol, veh/h		808			1146			60			67	
Approach Delay, s/veh		1.3			9.2			57.2			49.9	
Approach LOS		A			A			E			D	

Timer - Assigned Phs	2	4	5	6	8
Phs Duration (G+Y+Rc), s	100.5	19.5	9.5	91.0	19.5
Change Period (Y+Rc), s	5.3	* 4.8	4.0	5.3	* 4.8
Max Green Setting (Gmax), s	74.7	* 35	15.0	55.7	* 35
Max Q Clear Time (g_c+I1), s	37.0	16.5	2.7	27.1	16.5
Green Ext Time (p_c), s	23.1	0.1	0.0	12.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

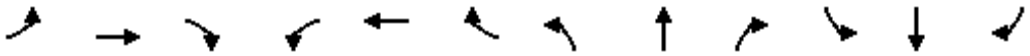
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	723	32	16	561	32	13
Future Volume (vph)	723	32	16	561	32	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	1801	1531	1711	1801	1672	
Flt Permitted	1.00	1.00	0.34	1.00	0.97	
Satd. Flow (perm)	1801	1531	613	1801	1672	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	786	35	17	610	35	14
RTOR Reduction (vph)	0	2	0	0	13	0
Lane Group Flow (vph)	786	33	17	610	36	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	527	1548	104	
v/s Ratio Prot	c0.44			0.34		
v/s Ratio Perm		0.02	0.03		c0.02	
v/c Ratio	0.51	0.02	0.03	0.39	0.34	
Uniform Delay, d1	2.1	1.2	1.2	1.8	53.9	
Progression Factor	0.29	0.39	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.0	0.1	0.8	0.7	
Delay (s)	1.7	0.5	1.3	2.5	54.6	
Level of Service	A	A	A	A	D	
Approach Delay (s)	1.7			2.5	54.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	850	8	9	324	11	36	1	25	178	10	146
Future Volume (vph)	25	850	8	9	324	11	36	1	25	178	10	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1798	1531		1655			1650	
Flt Permitted		0.98	1.00		0.55	1.00		0.68			0.80	
Satd. Flow (perm)		1768	1531		994	1531		1153			1351	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	924	9	10	352	12	39	1	27	193	11	159
RTOR Reduction (vph)	0	0	5	0	0	6	0	23	0	0	20	0
Lane Group Flow (vph)	0	951	4	0	362	6	0	44	0	0	343	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		56.3	56.3		56.3	56.3		9.0			41.2	
Effective Green, g (s)		56.3	56.3		56.3	56.3		9.0			41.2	
Actuated g/C Ratio		0.47	0.47		0.47	0.47		0.08			0.34	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		829	718		466	718		86			463	
v/s Ratio Prot												
v/s Ratio Perm		c0.54	0.00		0.36	0.00		c0.04			c0.25	
v/c Ratio		1.15	0.01		0.78	0.01		0.51			0.74	
Uniform Delay, d1		31.9	17.0		26.6	17.0		53.4			34.7	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		80.2	0.0		12.0	0.0		2.1			5.5	
Delay (s)		112.1	17.0		38.6	17.0		55.5			40.2	
Level of Service		F	B		D	B		E			D	
Approach Delay (s)		111.2			37.9			55.5			40.2	
Approach LOS		F			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	78.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	709	24	383	347	18	9	546	677	286	807	49
Future Volume (veh/h)	55	709	24	383	347	18	9	546	677	286	807	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	771	0	416	377	0	10	593	736	311	877	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	320	1335		357	1521		229	1218	690	279	1589	96
Arrive On Green	0.26	0.26	0.00	0.10	0.43	0.00	0.34	0.34	0.34	0.08	0.47	0.47
Sat Flow, veh/h	993	5274	0	3456	3647	0	599	3554	1534	3456	3398	205
Grp Volume(v), veh/h	60	771	0	416	377	0	10	593	736	311	459	471
Grp Sat Flow(s),veh/h/ln	993	1702	0	1728	1777	0	599	1777	1534	1728	1777	1827
Q Serve(g_s), s	5.7	15.8	0.0	12.4	8.1	0.0	1.5	15.8	41.1	9.7	22.2	22.2
Cycle Q Clear(g_c), s	5.7	15.8	0.0	12.4	8.1	0.0	8.7	15.8	41.1	9.7	22.2	22.2
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	320	1335		357	1521		229	1218	690	279	831	854
V/C Ratio(X)	0.19	0.58		1.16	0.25		0.04	0.49	1.07	1.11	0.55	0.55
Avail Cap(c_a), veh/h	372	1604		357	1521		229	1218	690	279	831	854
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	38.6	0.0	53.8	22.0	0.0	31.4	31.1	33.4	55.2	22.9	22.9
Incr Delay (d2), s/veh	1.1	1.6	0.0	100.5	0.1	0.0	0.4	1.4	53.6	87.8	2.6	2.6
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	1.5	6.7	0.0	10.3	3.4	0.0	0.2	6.9	29.5	7.6	9.7	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	40.2	0.0	154.3	22.0	0.0	31.8	32.5	87.0	142.9	25.5	25.5
LnGrp LOS	D	D		F	C		C	C	F	F	C	C
Approach Vol, veh/h		831			793			1339			1241	
Approach Delay, s/veh		39.9			91.4			62.5			54.9	
Approach LOS		D			F			E			D	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	37.7	15.0	47.3		57.7		62.3
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	17.8	11.7	43.1		10.1		24.2
Green Ext Time (p_c), s	0.0	11.2	0.0	0.0		2.7		8.8

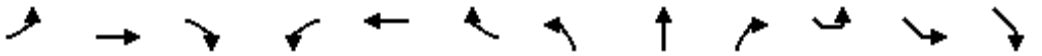
Intersection Summary	
HCM 6th Ctrl Delay	61.2
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

FUTURE BASE



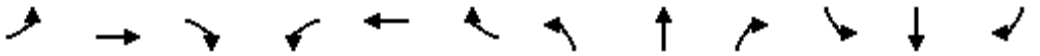
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	341	1316	97	107	1556	202	128	379	82	387	544	372
Future Volume (vph)	341	1316	97	107	1556	202	128	379	82	387	544	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.79	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1158	1711	4916	1404	1711	3421	1217	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1158	1711	4916	1404	1711	3421	1217	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	367	1415	104	113	1638	213	136	403	87	430	604	413
RTOR Reduction (vph)	0	0	64	0	0	104	0	0	60	214	0	0
Lane Group Flow (vph)	367	1415	40	113	1638	109	136	403	27	216	604	413
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.8	45.9	45.9	9.3	39.4	39.4	25.8	25.8	37.1	12.0	12.0	12.0
Effective Green, g (s)	15.8	45.9	45.9	9.3	39.4	39.4	25.8	25.8	37.1	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.38	0.38	0.08	0.33	0.33	0.22	0.22	0.31	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	437	1880	442	132	1614	460	367	735	376	171	171	153
v/s Ratio Prot	c0.11	c0.29		0.07	c0.33		0.08	c0.12	0.01	0.13	c0.35	0.27
v/s Ratio Perm			0.03			0.08			0.02			
v/c Ratio	0.84	0.75	0.09	0.86	1.01	0.24	0.37	0.55	0.07	1.26	3.53	2.70
Uniform Delay, d1	50.9	32.1	23.7	54.7	40.3	29.3	40.2	41.9	29.3	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.30	0.64	0.70	1.32	1.31	1.12	1.00	1.00	1.00
Incremental Delay, d2	12.7	2.8	0.4	30.2	23.2	0.9	0.1	0.3	0.0	156.2	1154.0	783.0
Delay (s)	63.6	35.0	24.1	101.4	48.8	21.4	53.2	55.4	32.8	210.2	1208.0	837.0
Level of Service	E	C	C	F	D	C	D	E	C	F	F	F
Approach Delay (s)		39.9			48.8			51.8			615.5	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	217.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	102.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	443
Future Volume (vph)	443
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	492
RTOR Reduction (vph)	211
Lane Group Flow (vph)	281
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.8
Effective Green, g (s)	27.8
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	345
v/s Ratio Prot	0.11
v/s Ratio Perm	0.08
v/c Ratio	0.81
Uniform Delay, d1	43.6
Progression Factor	1.00
Incremental Delay, d2	13.0
Delay (s)	56.6
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	1127	443	108	1483	152	227	680	50	83	381	53
Future Volume (vph)	124	1127	443	108	1483	152	227	680	50	83	381	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1450	1711	4916	1333	3385	3490	1501	1711	3349	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.45	1.00	
Satd. Flow (perm)	3319	4916	1450	1711	4916	1333	3385	3490	1501	811	3349	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	133	1212	476	114	1561	160	119	358	26	97	443	62
RTOR Reduction (vph)	0	0	203	0	0	73	0	0	20	0	11	0
Lane Group Flow (vph)	133	1212	273	114	1561	87	119	358	6	97	494	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	11.3	47.1	47.1	13.3	49.1	49.1	10.0	28.0	28.0	38.0	28.0	
Effective Green, g (s)	11.3	47.1	47.1	13.3	49.1	49.1	10.0	28.0	28.0	38.0	28.0	
Actuated g/C Ratio	0.09	0.39	0.39	0.11	0.41	0.41	0.08	0.23	0.23	0.32	0.23	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	312	1929	569	189	2011	545	282	814	350	331	781	
v/s Ratio Prot	0.04	c0.25		0.07	c0.32		c0.04	0.10		0.02	c0.15	
v/s Ratio Perm			0.19			0.07			0.00	0.07		
v/c Ratio	0.43	0.63	0.48	0.60	0.78	0.16	0.42	0.44	0.02	0.29	0.63	
Uniform Delay, d1	51.3	29.4	27.3	50.8	30.7	22.4	52.3	39.3	35.4	29.8	41.4	
Progression Factor	0.90	0.84	0.74	1.00	0.89	0.62	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.3	5.0	2.8	0.6	1.0	0.8	0.0	0.5	2.6	
Delay (s)	46.3	24.8	20.4	56.0	30.2	14.4	53.3	40.1	35.5	30.3	44.0	
Level of Service	D	C	C	E	C	B	D	D	D	C	D	
Approach Delay (s)		25.2			30.4			43.0			41.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

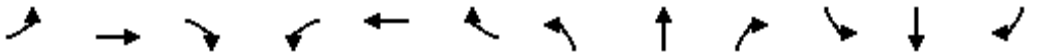
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	20	1215	15	14	1737	11	4	2	1	4	1
Future Volume (vph)	9	20	1215	15	14	1737	11	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1705	4916	1443	1703	4916	1383		1727	1481		1599
Flt Permitted		0.09	1.00	1.00	0.18	1.00	1.00		0.79	1.00		0.88
Satd. Flow (perm)		169	4916	1443	331	4916	1383		1415	1481		1432
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	10	22	1350	17	16	1930	12	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	6
Lane Group Flow (vph)	0	32	1350	14	16	1930	10	0	12	0	0	7
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		141	4121	1209	277	4121	1159		103	108		105
v/s Ratio Prot			0.27			c0.39						
v/s Ratio Perm		0.19		0.01	0.05		0.01		c0.01	0.00		0.01
v/c Ratio		0.23	0.33	0.01	0.06	0.47	0.01		0.12	0.00		0.07
Uniform Delay, d1		1.9	2.2	1.6	1.6	2.6	1.6		52.0	51.5		51.8
Progression Factor		2.65	2.63	4.72	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		3.2	0.2	0.0	0.4	0.4	0.0		0.5	0.0		0.3
Delay (s)		8.3	5.9	7.5	2.0	3.0	1.6		52.5	51.5		52.1
Level of Service		A	A	A	A	A	A		D	D		D
Approach Delay (s)			5.9			3.0			52.3			52.1
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



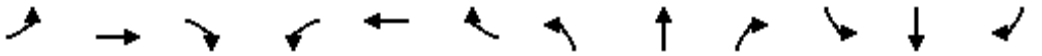
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1122	18	52	1573	159	115	201	13	98	73	19
Future Volume (veh/h)	67	1122	18	52	1573	159	115	201	13	98	73	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	1220	20	57	1710	173	125	218	14	107	79	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	3174	942	338	3174	931	176	267	16	189	132	31
Arrive On Green	1.00	1.00	1.00	0.62	0.62	0.62	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	241	5106	1515	447	5106	1497	488	961	59	516	473	112
Grp Volume(v), veh/h	73	1220	20	57	1710	173	357	0	0	207	0	0
Grp Sat Flow(s),veh/h/ln	241	1702	1515	447	1702	1497	1508	0	0	1101	0	0
Q Serve(g_s), s	21.7	0.0	0.0	6.6	22.9	5.9	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	44.5	0.0	0.0	6.6	22.9	5.9	27.3	0.0	0.0	21.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.52		0.10
Lane Grp Cap(c), veh/h	164	3174	942	338	3174	931	460	0	0	352	0	0
V/C Ratio(X)	0.44	0.38	0.02	0.17	0.54	0.19	0.78	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	164	3174	942	338	3174	931	648	0	0	514	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.21	0.21	0.21	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.8	0.0	0.0	9.8	12.9	9.7	41.1	0.0	0.0	38.2	0.0	0.0
Incr Delay (d2), s/veh	8.5	0.4	0.0	0.2	0.1	0.1	3.9	0.0	0.0	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.0	0.6	8.0	1.8	10.6	0.0	0.0	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	0.4	0.0	10.1	13.1	9.8	45.0	0.0	0.0	39.8	0.0	0.0
LnGrp LOS	B	A	A	B	B	A	D	A	A	D	A	A
Approach Vol, veh/h		1313			1940			357			207	
Approach Delay, s/veh		1.2			12.7			45.0			39.8	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.1		39.9		80.1		39.9				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		24.9		23.1		46.5		29.3				
Green Ext Time (p_c), s		27.2		1.3		10.4		2.2				

Intersection Summary												
HCM 6th Ctrl Delay			13.2									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	914	116	159	1259	44	163	1654	57	46	855	272
Future Volume (veh/h)	266	914	116	159	1259	44	163	1654	57	46	855	272
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	306	1051	133	177	1399	0	185	1880	65	48	900	286
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1340	406	287	1584		279	1869	65	178	1343	425
Arrive On Green	0.03	0.09	0.09	0.12	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1545	1781	5106	1585	1781	5063	175	1781	3809	1205
Grp Volume(v), veh/h	306	1051	133	177	1399	0	185	1263	682	48	804	382
Grp Sat Flow(s),veh/h/ln	1728	1702	1545	1781	1702	1585	1781	1702	1834	1781	1702	1610
Q Serve(g_s), s	8.8	24.2	7.5	5.7	31.2	0.0	7.8	44.3	44.3	1.9	24.0	24.2
Cycle Q Clear(g_c), s	8.8	24.2	7.5	5.7	31.2	0.0	7.8	44.3	44.3	1.9	24.0	24.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.75
Lane Grp Cap(c), veh/h	408	1340	406	287	1584		279	1257	677	178	1200	568
V/C Ratio(X)	0.75	0.78	0.33	0.62	0.88		0.66	1.01	1.01	0.27	0.67	0.67
Avail Cap(c_a), veh/h	408	1413	427	287	1584		280	1257	677	208	1257	594
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	51.5	27.0	47.8	39.3	0.0	25.3	37.8	37.9	28.3	32.9	33.0
Incr Delay (d2), s/veh	7.0	4.3	2.0	3.9	7.5	0.0	5.7	26.6	36.4	0.8	1.3	2.8
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	4.3	11.6	3.1	5.1	13.7	0.0	3.6	22.2	25.8	0.8	9.8	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	55.8	29.0	51.7	46.9	0.0	31.0	64.5	74.3	29.1	34.2	35.8
LnGrp LOS	D	E	C	D	D		C	F	F	C	C	D
Approach Vol, veh/h		1490			1576			2130			1234	
Approach Delay, s/veh		51.9			47.4			64.7			34.5	
Approach LOS		D			D			E			C	

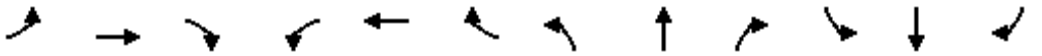
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	51.0	19.7	37.3	14.0	49.0	14.0	43.0
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	3.9	46.3	7.7	26.2	9.8	26.2	10.8	33.2
Green Ext Time (p_c), s	0.0	0.0	0.1	5.3	0.0	7.5	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] 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)	14	0	8	1	0	2	22	931	23	23	879	34
Future Volume (veh/h)	14	0	8	1	0	2	22	931	23	23	879	34
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		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	0	9	1	0	2	24	1012	25	25	1758	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	0	0
Cap, veh/h	51	0	0	4	0	0	302	2568	1086	518	2614	1105
Arrive On Green	0.03	0.00	0.00	0.00	0.00	0.00	0.05	0.72	0.72	0.05	0.72	0.72
Sat Flow, veh/h	1781	15		1781	1		1781	3554	1502	1781	3610	1526
Grp Volume(v), veh/h	15	35.7		1	48.4		24	1012	25	25	1758	68
Grp Sat Flow(s),veh/h/ln	1781	D		1781	D		1781	1777	1502	1781	1805	1526
Q Serve(g_s), s	0.6			0.0			0.2	8.0	0.3	0.2	19.0	0.9
Cycle Q Clear(g_c), s	0.6			0.0			0.2	8.0	0.3	0.2	19.0	0.9
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51			4			302	2568	1086	518	2614	1105
V/C Ratio(X)	0.29			0.26			0.08	0.39	0.02	0.05	0.67	0.06
Avail Cap(c_a), veh/h	706			706			634	2920	1234	848	2966	1254
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.6			36.2			4.7	3.9	2.8	2.4	5.4	2.9
Incr Delay (d2), s/veh	1.2			12.2			0.0	0.2	0.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3			0.0			0.1	1.8	0.1	0.0	4.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7			48.4			4.7	4.1	2.9	2.4	6.2	2.9
LnGrp LOS	D			D			A	A	A	A	A	A
Approach Vol, veh/h								1061			1851	
Approach Delay, s/veh								4.1			6.0	
Approach LOS								A			A	

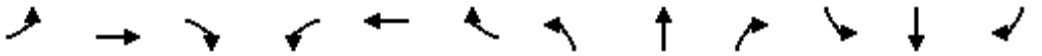
Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	7.6	57.8	5.4	7.5	57.9	7.3
Change Period (Y+Rc), s	4.0	5.3	* 5.2	4.0	5.3	* 5.2
Max Green Setting (Gmax), s	17.0	59.7	* 29	17.0	59.7	* 29
Max Q Clear Time (g_c+I1), s	2.2	10.0	2.0	2.2	21.0	2.6
Green Ext Time (p_c), s	0.0	18.9	0.0	0.0	31.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	317	54	119	500	238	33	303	92	163	282	87
Future Volume (vph)	99	317	54	119	500	238	33	303	92	163	282	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1713		1711	1801	1531	1711	1801	1412
Flt Permitted	0.14	1.00	1.00	0.49	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	261	1801	1397	881	1713		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	345	59	129	543	259	36	329	100	177	307	95
RTOR Reduction (vph)	0	0	27	0	13	0	0	0	49	0	0	0
Lane Group Flow (vph)	108	345	32	129	789	0	36	329	51	177	307	95
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	64.7	64.7	64.7	64.7	64.7		6.0	27.4	27.4	12.6	34.0	34.0
Effective Green, g (s)	64.7	64.7	64.7	64.7	64.7		6.0	27.4	27.4	12.6	34.0	34.0
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.05	0.23	0.23	0.10	0.28	0.28
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	140	971	753	475	923		85	411	349	179	510	400
v/s Ratio Prot		0.19			c0.46		0.02	c0.18		c0.10	0.17	
v/s Ratio Perm	0.41		0.02	0.15					0.03			0.07
v/c Ratio	0.77	0.36	0.04	0.27	0.85		0.42	0.80	0.15	0.99	0.60	0.24
Uniform Delay, d1	21.8	15.8	13.0	14.9	23.6		55.3	43.7	37.0	53.6	37.2	33.0
Progression Factor	1.00	1.00	1.00	0.74	0.87		1.00	1.00	1.00	1.57	0.48	0.44
Incremental Delay, d2	32.9	1.0	0.1	1.2	8.7		1.2	10.1	0.1	17.3	0.1	0.0
Delay (s)	54.7	16.8	13.1	12.2	29.3		56.6	53.8	37.0	101.8	17.9	14.6
Level of Service	D	B	B	B	C		E	D	D	F	B	B
Approach Delay (s)		24.4			26.9			50.4			43.0	
Approach LOS		C			C			D			D	

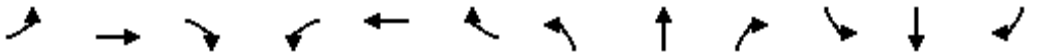
Intersection Summary			
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	96.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	419	137	104	790	66	67
Future Volume (vph)	419	137	104	790	66	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.45	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	811	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	455	149	113	859	72	73
RTOR Reduction (vph)	0	18	0	0	0	62
Lane Group Flow (vph)	455	131	113	859	72	11
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.8	88.8	101.8	101.8	8.9	17.9
Effective Green, g (s)	88.8	88.8	101.8	101.8	8.9	17.9
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.07	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1332	1132	755	1527	126	279
v/s Ratio Prot	0.25		0.01	c0.48		0.00
v/s Ratio Perm		0.09	0.12		c0.04	0.00
v/c Ratio	0.34	0.12	0.15	0.56	0.57	0.04
Uniform Delay, d1	5.4	4.4	1.9	2.6	53.7	43.7
Progression Factor	1.90	2.56	0.84	1.32	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.0	0.7	3.8	0.0
Delay (s)	10.9	11.5	1.6	4.2	57.6	43.7
Level of Service	B	B	A	A	E	D
Approach Delay (s)	11.1			3.9	50.6	
Approach LOS	B			A	D	

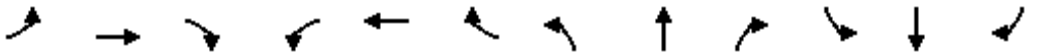
Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	311	111	98	630	115	137	810	70	72	681	120
Future Volume (vph)	66	311	111	98	630	115	137	810	70	72	681	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1280	1711	1801	1531	1711	3421	1483	1711	3421	1300
Flt Permitted	0.09	1.00	1.00	0.41	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	160	1801	1280	747	1801	1531	1711	3421	1483	1711	3421	1300
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	72	338	121	107	685	125	149	880	76	78	740	130
RTOR Reduction (vph)	0	0	76	0	0	0	0	0	48	0	0	87
Lane Group Flow (vph)	72	338	45	107	685	125	149	880	28	78	740	43
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	54.7	45.1	45.1	54.7	45.1	45.1	13.2	35.0	44.6	8.9	30.5	40.1
Effective Green, g (s)	54.7	45.1	45.1	54.7	45.1	45.1	13.2	35.0	44.6	8.9	30.5	40.1
Actuated g/C Ratio	0.46	0.38	0.38	0.46	0.38	0.38	0.11	0.29	0.37	0.07	0.25	0.33
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	197	676	481	417	676	575	188	997	551	126	869	434
v/s Ratio Prot	c0.03	0.19		0.02	c0.38		0.09	c0.26	0.00	0.05	c0.22	0.01
v/s Ratio Perm	0.14		0.04	0.10		0.08			0.01			0.03
v/c Ratio	0.37	0.50	0.09	0.26	1.01	0.22	0.79	0.88	0.05	0.62	0.85	0.10
Uniform Delay, d1	25.6	28.8	24.2	19.6	37.5	25.5	52.1	40.5	24.1	53.9	42.6	27.5
Progression Factor	0.67	0.63	1.00	0.85	0.89	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.5	0.4	0.0	21.0	0.2	18.9	10.0	0.0	6.2	8.8	0.0
Delay (s)	17.6	20.7	24.6	16.7	54.2	22.4	70.9	50.5	24.2	60.1	51.4	27.6
Level of Service	B	C	C	B	D	C	E	D	C	E	D	C
Approach Delay (s)		21.2			45.5			51.5			48.9	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	390	31	19	793	31	42	0	10	0	0	9
Future Volume (veh/h)	60	390	31	19	793	31	42	0	10	0	0	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	424	34	38	1586	34	46	0	11	0	0	10
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	1479	1254	873	1620	1373	130	0	79	0	93	79
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	312	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Grp Volume(v), veh/h	65	424	34	38	1586	34	46	0	11	0	0	10
Grp Sat Flow(s),veh/h/ln	312	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Q Serve(g_s), s	14.4	0.0	0.0	0.4	89.5	0.4	3.9	0.0	0.8	0.0	0.0	0.7
Cycle Q Clear(g_c), s	94.9	0.0	0.0	0.4	89.5	0.4	3.9	0.0	0.8	0.0	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	97	1479	1254	873	1620	1373	130	0	79	0	93	79
V/C Ratio(X)	0.67	0.29	0.03	0.04	0.98	0.02	0.35	0.00	0.14	0.00	0.00	0.13
Avail Cap(c_a), veh/h	97	1479	1254	1021	1620	1373	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	43.3	0.0	0.0	1.4	7.1	1.1	56.0	0.0	54.6	0.0	0.0	54.5
Incr Delay (d2), s/veh	28.1	0.4	0.0	0.0	17.9	0.0	0.6	0.0	0.3	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.2	0.0	0.1	22.2	0.1	1.4	0.0	0.3	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	0.4	0.0	1.4	24.9	1.1	56.6	0.0	54.9	0.0	0.0	54.8
LnGrp LOS	E	A	A	A	C	A	E	A	D	A	A	D
Approach Vol, veh/h		523			1658			57			10	
Approach Delay, s/veh		9.2			23.9			56.3			54.8	
Approach LOS		A			C			E			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		109.2		10.8	9.0	100.2		10.8				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		91.5		5.9	2.4	96.9		2.7				
Green Ext Time (p_c), s		0.0		0.1	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		21.5
HCM 6th LOS		C

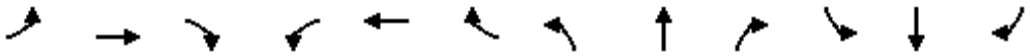
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	397	11	1	788	63	13
Future Volume (vph)	397	11	1	788	63	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1689	
Flt Permitted	1.00	1.00	0.51	1.00	0.96	
Satd. Flow (perm)	1801	1531	916	1801	1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	432	12	1	857	68	14
RTOR Reduction (vph)	0	2	0	0	7	0
Lane Group Flow (vph)	432	10	1	857	75	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	101.8	101.8	101.8	101.8	8.9	
Effective Green, g (s)	101.8	101.8	101.8	101.8	8.9	
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.07	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1527	1298	777	1527	125	
v/s Ratio Prot	0.24			c0.48		
v/s Ratio Perm		0.01	0.00		c0.04	
v/c Ratio	0.28	0.01	0.00	0.56	0.60	
Uniform Delay, d1	1.8	1.4	1.4	2.6	53.8	
Progression Factor	1.79	1.71	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	1.5	5.0	
Delay (s)	3.7	2.4	1.4	4.1	58.8	
Level of Service	A	A	A	A	E	
Approach Delay (s)	3.7			4.1	58.8	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

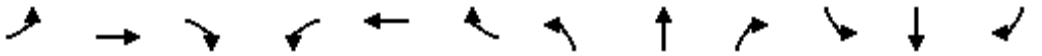
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	403	25	6	929	14	54	1	21	57	23	84
Future Volume (vph)	17	403	25	6	929	14	54	1	21	57	23	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.93	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.98	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1648	
Flt Permitted		0.78	1.00		1.00	1.00		0.45			0.85	
Satd. Flow (perm)		1398	1531		1795	1531		785			1430	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	438	27	7	1010	15	59	1	23	62	25	91
RTOR Reduction (vph)	0	0	10	0	0	5	0	12	0	0	35	0
Lane Group Flow (vph)	0	456	17	0	1017	10	0	71	0	0	143	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		77.0	77.0		77.0	77.0		13.2			16.3	
Effective Green, g (s)		77.0	77.0		77.0	77.0		13.2			16.3	
Actuated g/C Ratio		0.64	0.64		0.64	0.64		0.11			0.14	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		897	982		1151	982		86			194	
v/s Ratio Prot												
v/s Ratio Perm		0.33	0.01		c0.57	0.01		c0.09			c0.10	
v/c Ratio		0.51	0.02		0.88	0.01		0.82			0.74	
Uniform Delay, d1		11.4	7.8		17.8	7.8		52.2			49.8	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		2.1	0.0		10.0	0.0		42.4			11.9	
Delay (s)		13.5	7.8		27.8	7.8		94.6			61.8	
Level of Service		B	A		C	A		F			E	
Approach Delay (s)		13.2			27.5			94.6			61.8	
Approach LOS		B			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	234	31	971	760	30	55	886	607	176	545	31
Future Volume (veh/h)	41	234	31	971	760	30	55	886	607	176	545	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	254	0	1055	826	0	60	963	660	191	592	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	182	1060		357	1330		382	1443	789	247	1779	102
Arrive On Green	0.21	0.21	0.00	0.10	0.37	0.00	0.41	0.41	0.41	0.07	0.52	0.52
Sat Flow, veh/h	658	5274	0	3456	3647	0	794	3554	1539	3456	3410	196
Grp Volume(v), veh/h	45	254	0	1055	826	0	60	963	660	191	308	318
Grp Sat Flow(s),veh/h/ln	658	1702	0	1728	1777	0	794	1777	1539	1728	1777	1829
Q Serve(g_s), s	7.2	5.0	0.0	12.4	22.7	0.0	5.8	26.5	44.2	6.5	12.0	12.1
Cycle Q Clear(g_c), s	9.9	5.0	0.0	12.4	22.7	0.0	5.8	26.5	44.2	6.5	12.0	12.1
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	182	1060		357	1330		382	1443	789	247	927	954
V/C Ratio(X)	0.25	0.24		2.95	0.62		0.16	0.67	0.84	0.77	0.33	0.33
Avail Cap(c_a), veh/h	252	1604		357	1330		382	1443	789	279	927	954
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	39.6	0.0	53.8	30.6	0.0	22.9	29.0	25.3	54.8	16.6	16.6
Incr Delay (d2), s/veh	2.9	0.5	0.0	887.1	0.9	0.0	0.9	2.5	10.3	11.3	1.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.1	0.0	49.3	9.7	0.0	1.2	11.5	17.6	3.2	5.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	40.1	0.0	940.9	31.5	0.0	23.8	31.5	35.6	66.1	17.6	17.6
LnGrp LOS	D	D		F	C		C	C	D	E	B	B
Approach Vol, veh/h		299			1881			1683			817	
Approach Delay, s/veh		41.0			541.5			32.8			28.9	
Approach LOS		D			F			C			C	

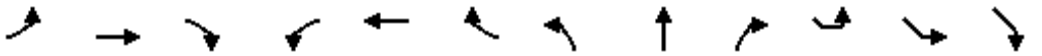
Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	20.0	31.2	13.9	54.9		51.2		68.8				
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2				
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8				
Max Q Clear Time (g_c+I1), s	14.4	11.9	8.5	46.2		24.7		14.1				
Green Ext Time (p_c), s	0.0	4.7	0.1	0.0		4.8		5.8				

Intersection Summary		
HCM 6th Ctrl Delay	237.1	
HCM 6th LOS	F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



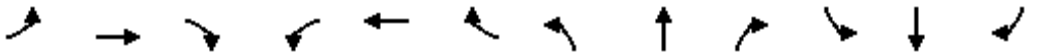
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	200	1380	102	181	1565	137	148	462	266	155	423	257
Future Volume (vph)	200	1380	102	181	1565	137	148	462	266	155	423	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1156	1711	4916	1408	1711	3421	1257	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1156	1711	4916	1408	1711	3421	1257	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	215	1484	110	191	1647	144	157	491	283	172	470	286
RTOR Reduction (vph)	0	0	74	0	0	90	0	0	63	140	0	0
Lane Group Flow (vph)	215	1484	36	191	1647	54	157	491	220	33	470	286
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.9	39.0	39.0	15.1	45.2	45.2	26.9	26.9	44.0	12.0	12.0	12.0
Effective Green, g (s)	8.9	39.0	39.0	15.1	45.2	45.2	26.9	26.9	44.0	12.0	12.0	12.0
Actuated g/C Ratio	0.07	0.32	0.32	0.13	0.38	0.38	0.22	0.22	0.37	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	246	1597	375	215	1851	530	383	766	460	171	171	153
v/s Ratio Prot	0.06	0.30		c0.11	c0.34		0.09	c0.14	0.06	0.02	c0.27	0.19
v/s Ratio Perm			0.03			0.04			0.11			
v/c Ratio	0.87	0.93	0.10	0.89	0.89	0.10	0.41	0.64	0.48	0.19	2.75	1.87
Uniform Delay, d1	55.0	39.2	28.2	51.6	35.1	24.2	39.8	42.2	29.2	49.5	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.35	0.61	0.87	0.90	0.90	0.71	1.00	1.00	1.00
Incremental Delay, d2	26.5	11.0	0.5	28.2	5.9	0.3	0.2	0.8	0.2	0.7	803.1	415.0
Delay (s)	81.5	50.2	28.7	97.8	27.2	21.4	36.1	38.6	20.8	50.3	857.1	469.0
Level of Service	F	D	C	F	C	C	D	D	C	D	F	F
Approach Delay (s)		52.6			33.6			32.8			440.1	
Approach LOS		D			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	125.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	314
Future Volume (vph)	314
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1465
Flt Permitted	1.00
Satd. Flow (perm)	1465
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	349
RTOR Reduction (vph)	206
Lane Group Flow (vph)	143
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	20.9
Effective Green, g (s)	20.9
Actuated g/C Ratio	0.17
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	255
v/s Ratio Prot	0.04
v/s Ratio Perm	0.06
v/c Ratio	0.56
Uniform Delay, d1	45.3
Progression Factor	1.00
Incremental Delay, d2	1.5
Delay (s)	46.8
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	1612	366	150	1304	50	234	416	167	108	457	53
Future Volume (vph)	89	1612	366	150	1304	50	234	416	167	108	457	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1449	1711	4916	1332	3385	3490	1501	1711	3360	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	
Satd. Flow (perm)	3319	4916	1449	1711	4916	1332	3385	3490	1501	1107	3360	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	96	1733	394	158	1373	53	123	219	88	126	531	62
RTOR Reduction (vph)	0	0	144	0	0	33	0	0	66	0	8	0
Lane Group Flow (vph)	96	1733	250	158	1373	20	123	219	22	126	585	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	12.6	40.3	40.3	18.0	45.7	45.7	10.0	30.1	30.1	40.1	30.1	
Effective Green, g (s)	12.6	40.3	40.3	18.0	45.7	45.7	10.0	30.1	30.1	40.1	30.1	
Actuated g/C Ratio	0.10	0.34	0.34	0.15	0.38	0.38	0.08	0.25	0.25	0.33	0.25	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	348	1650	486	256	1872	507	282	875	376	420	842	
v/s Ratio Prot	0.03	c0.35		0.09	c0.28		c0.04	0.06		0.02	c0.17	
v/s Ratio Perm			0.17			0.02			0.01	0.08		
v/c Ratio	0.28	1.05	0.51	0.62	0.73	0.04	0.44	0.25	0.06	0.30	0.69	
Uniform Delay, d1	49.5	39.9	32.0	47.8	31.9	23.4	52.3	35.9	34.2	28.7	40.8	
Progression Factor	0.82	0.77	0.53	1.02	0.81	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	24.5	0.4	4.1	2.4	0.1	1.1	0.3	0.1	0.4	3.5	
Delay (s)	40.8	55.4	17.2	52.6	28.3	23.5	53.4	36.2	34.3	29.1	44.3	
Level of Service	D	E	B	D	C	C	D	D	C	C	D	
Approach Delay (s)		48.0			30.6			40.8			41.6	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

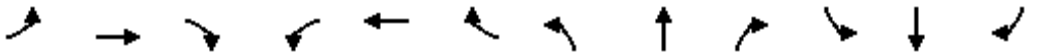
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	6	17	1795	40	117	1363	10	22	1	15	118	5
Future Volume (vph)	6	17	1795	40	117	1363	10	22	1	15	118	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		0.99	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1702	4916	1442	1711	4916	1380		1704	1486		1657
Flt Permitted		0.14	1.00	1.00	0.08	1.00	1.00		0.70	1.00		0.75
Satd. Flow (perm)		252	4916	1442	136	4916	1380		1243	1486		1290
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	7	19	1994	44	130	1514	11	42	2	28	144	6
RTOR Reduction (vph)	0	0	0	8	0	0	3	0	0	12	0	11
Lane Group Flow (vph)	0	26	1994	36	130	1514	8	0	44	16	0	180
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		86.6	86.6	86.6	86.6	86.6	86.6		22.8	22.8		22.8
Effective Green, g (s)		86.6	86.6	86.6	86.6	86.6	86.6		22.8	22.8		22.8
Actuated g/C Ratio		0.72	0.72	0.72	0.72	0.72	0.72		0.19	0.19		0.19
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		181	3547	1040	98	3547	995		236	282		245
v/s Ratio Prot			0.41			0.31						
v/s Ratio Perm		0.10		0.03	c0.96		0.01		0.04	0.01		c0.14
v/c Ratio		0.14	0.56	0.04	1.33	0.43	0.01		0.19	0.06		0.74
Uniform Delay, d1		5.2	7.8	4.8	16.7	6.7	4.7		40.8	39.8		45.8
Progression Factor		1.51	1.61	2.08	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.9	0.3	0.0	201.4	0.4	0.0		0.4	0.1		10.9
Delay (s)		8.7	12.9	9.9	218.1	7.1	4.7		41.2	39.9		56.7
Level of Service		A	B	A	F	A	A		D	D		E
Approach Delay (s)			12.8			23.7			40.7			56.7
Approach LOS			B			C			D			E

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	34
Future Volume (vph)	34
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	41
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



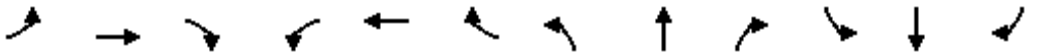
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	1823	65	82	1242	37	27	33	12	180	111	4
Future Volume (veh/h)	68	1823	65	82	1242	37	27	33	12	180	111	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	1982	71	89	1350	40	29	36	13	196	121	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	3254	966	143	3254	955	173	206	68	292	151	5
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	389	5106	1516	204	5106	1498	502	784	257	929	574	19
Grp Volume(v), veh/h	74	1982	71	89	1350	40	78	0	0	321	0	0
Grp Sat Flow(s),veh/h/ln	389	1702	1516	204	1702	1498	1543	0	0	1522	0	0
Q Serve(g_s), s	13.9	27.6	2.1	48.9	15.6	1.2	0.0	0.0	0.0	19.3	0.0	0.0
Cycle Q Clear(g_c), s	29.6	27.6	2.1	76.5	15.6	1.2	4.1	0.0	0.0	23.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.37		0.17	0.61		0.01
Lane Grp Cap(c), veh/h	257	3254	966	143	3254	955	447	0	0	448	0	0
V/C Ratio(X)	0.29	0.61	0.07	0.62	0.41	0.04	0.17	0.00	0.00	0.72	0.00	0.00
Avail Cap(c_a), veh/h	257	3254	966	143	3254	955	650	0	0	647	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.0	12.9	8.3	37.2	10.7	8.1	34.1	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.9	0.1	14.8	0.3	0.1	0.2	0.0	0.0	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	9.7	0.7	3.2	5.4	0.4	1.8	0.0	0.0	9.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	13.8	8.4	52.0	11.0	8.2	34.3	0.0	0.0	43.2	0.0	0.0
LnGrp LOS	C	B	A	D	B	A	C	A	A	D	A	A
Approach Vol, veh/h		2127			1479			78			321	
Approach Delay, s/veh		13.8			13.4			34.3			43.2	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.0		38.0		82.0		38.0				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		78.5		25.4		31.6		6.1				
Green Ext Time (p_c), s		0.0		2.0		25.0		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		16.4
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	1477	108	132	853	11	67	856	47	124	947	370
Future Volume (veh/h)	285	1477	108	132	853	11	67	856	47	124	947	370
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	328	1698	124	147	948	0	76	973	53	131	997	389
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	417	1413	428	280	1694		228	1642	89	299	1207	471
Arrive On Green	0.03	0.09	0.09	0.12	0.33	0.00	0.08	0.33	0.33	0.08	0.34	0.34
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4948	269	1781	3577	1395
Grp Volume(v), veh/h	328	1698	124	147	948	0	76	669	357	131	949	437
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1813	1781	1702	1568
Q Serve(g_s), s	9.2	33.2	7.0	5.1	18.3	0.0	3.2	19.6	19.7	5.6	30.7	30.7
Cycle Q Clear(g_c), s	9.2	33.2	7.0	5.1	18.3	0.0	3.2	19.6	19.7	5.6	30.7	30.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.89
Lane Grp Cap(c), veh/h	417	1413	428	280	1694		228	1130	602	299	1148	529
V/C Ratio(X)	0.79	1.20	0.29	0.53	0.56		0.33	0.59	0.59	0.44	0.83	0.83
Avail Cap(c_a), veh/h	417	1413	428	280	1694		240	1257	669	301	1257	579
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	54.5	26.5	47.3	32.9	0.0	26.6	33.3	33.4	24.3	36.5	36.5
Incr Delay (d2), s/veh	7.0	96.0	1.2	1.8	1.3	0.0	0.8	1.1	2.2	1.0	4.3	9.0
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	4.5	27.7	2.8	4.1	7.5	0.0	1.3	8.0	8.8	2.4	13.0	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	150.5	27.8	49.1	34.2	0.0	27.5	34.5	35.5	25.4	40.9	45.5
LnGrp LOS	D	F	C	D	C		C	C	D	C	D	D
Approach Vol, veh/h		2150			1095			1102			1517	
Approach Delay, s/veh		127.7			36.2			34.3			40.9	
Approach LOS		F			D			C			D	

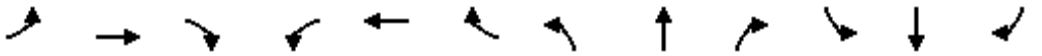
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	46.5	20.6	39.0	13.2	47.2	14.0	45.6
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.6	21.7	7.1	35.2	5.2	32.7	11.2	20.3
Green Ext Time (p_c), s	0.1	11.8	0.1	0.0	0.1	6.7	0.0	8.0

Intersection Summary	
HCM 6th Ctrl Delay	70.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] 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)	14	0	32	4	0	18	36	785	1	0	956	44
Future Volume (veh/h)	14	0	32	4	0	18	36	785	1	0	956	44
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		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	0	35	4	0	20	39	853	1	0	1912	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	0	0
Cap, veh/h	51	0	0	15	0	0	297	2972	1262	560	2596	1097
Arrive On Green	0.03	0.00	0.00	0.01	0.00	0.00	0.07	0.84	0.84	0.00	0.72	0.72
Sat Flow, veh/h	1781	15		1781	4		1781	3554	1509	1781	3610	1526
Grp Volume(v), veh/h	15	38.2		4	41.6		39	853	1	0	1912	88
Grp Sat Flow(s),veh/h/ln	1781	D		1781	D		1781	1777	1509	1781	1805	1526
Q Serve(g_s), s	0.6			0.2			0.3	4.0	0.0	0.0	24.6	1.3
Cycle Q Clear(g_c), s	0.6			0.2			0.3	4.0	0.0	0.0	24.6	1.3
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	51			15			297	2972	1262	560	2596	1097
V/C Ratio(X)	0.30			0.26			0.13	0.29	0.00	0.00	0.74	0.08
Avail Cap(c_a), veh/h	660			660			569	2972	1262	947	2774	1173
HCM Platoon Ratio	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	0.00	1.00	1.00
Uniform Delay (d), s/veh	37.0			38.3			7.0	1.4	1.0	0.0	6.5	3.3
Incr Delay (d2), s/veh	1.2			3.4			0.1	0.1	0.0	0.0	1.3	0.1
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3			0.1			0.2	0.3	0.0	0.0	6.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2			41.6			7.1	1.5	1.0	0.0	7.8	3.3
LnGrp LOS	D			D			A	A	A	A	A	A
Approach Vol, veh/h								893			2000	
Approach Delay, s/veh								1.7			7.6	
Approach LOS								A			A	

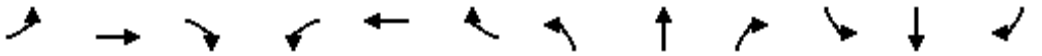
Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	0.0	70.3	5.9	9.1	61.2	7.4
Change Period (Y+Rc), s	4.0	5.3	* 5.2	4.0	5.3	* 5.2
Max Green Setting (Gmax), s	17.0	59.7	* 29	17.0	59.7	* 29
Max Q Clear Time (g_c+I1), s	0.0	6.0	2.2	2.3	26.6	2.6
Green Ext Time (p_c), s	0.0	14.9	0.0	0.0	29.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	311	555	50	81	279	215	53	295	109	176	335	99
Future Volume (vph)	311	555	50	81	279	215	53	295	109	176	335	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.96	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1649	1801	1397	1711	1683		1711	1801	1531	1711	1801	1412
Flt Permitted	0.34	1.00	1.00	0.29	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	581	1801	1397	515	1683		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	338	603	54	88	303	234	58	321	118	191	364	108
RTOR Reduction (vph)	0	0	25	0	22	0	0	0	50	0	0	0
Lane Group Flow (vph)	338	603	29	88	515	0	58	321	68	191	364	108
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	64.6	64.6	64.6	64.6	64.6		8.4	25.6	25.6	14.5	31.7	31.7
Effective Green, g (s)	64.6	64.6	64.6	64.6	64.6		8.4	25.6	25.6	14.5	31.7	31.7
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.07	0.21	0.21	0.12	0.26	0.26
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	312	969	752	277	906		119	384	326	206	475	373
v/s Ratio Prot		0.33			0.31		0.03	0.18		c0.11	c0.20	
v/s Ratio Perm	c0.58		0.02	0.17					0.04			0.08
v/c Ratio	1.08	0.62	0.04	0.32	0.57		0.49	0.84	0.21	0.93	0.77	0.29
Uniform Delay, d1	27.7	19.2	13.1	15.4	18.4		53.7	45.2	38.9	52.2	40.7	35.2
Progression Factor	1.00	1.00	1.00	1.24	1.17		1.00	1.00	1.00	0.82	1.15	1.15
Incremental Delay, d2	75.0	3.0	0.1	2.9	2.5		1.1	13.9	0.1	7.1	0.6	0.0
Delay (s)	102.7	22.2	13.2	22.0	24.1		54.9	59.1	39.0	49.8	47.6	40.6
Level of Service	F	C	B	C	C		D	E	D	D	D	D
Approach Delay (s)		49.1			23.8			53.8			47.1	
Approach LOS		D			C			D			D	

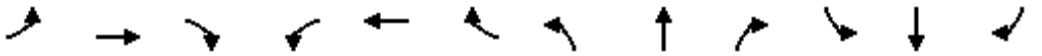
Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	773	81	90	470	72	100
Future Volume (vph)	773	81	90	470	72	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.25	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	450	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	840	88	98	511	78	109
RTOR Reduction (vph)	0	6	0	0	0	92
Lane Group Flow (vph)	840	82	98	511	78	17
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.3	88.3	101.5	101.5	9.2	18.4
Effective Green, g (s)	88.3	88.3	101.5	101.5	9.2	18.4
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1325	1126	477	1523	131	285
v/s Ratio Prot	c0.47		0.02	c0.28		0.00
v/s Ratio Perm		0.05	0.16		c0.05	0.01
v/c Ratio	0.63	0.07	0.21	0.34	0.60	0.06
Uniform Delay, d1	7.8	4.4	5.0	2.0	53.6	43.4
Progression Factor	0.78	0.97	0.44	0.37	1.00	1.00
Incremental Delay, d2	1.8	0.1	0.1	0.5	4.8	0.0
Delay (s)	7.9	4.4	2.3	1.2	58.4	43.4
Level of Service	A	A	A	A	E	D
Approach Delay (s)	7.6			1.4	49.7	
Approach LOS	A			A	D	

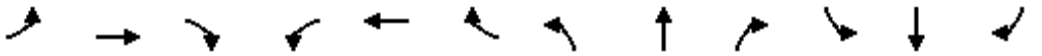
Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	495	178	152	371	125	135	599	260	98	744	122
Future Volume (vph)	107	495	178	152	371	125	135	599	260	98	744	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.86
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1488	1711	3421	1319
Flt Permitted	0.31	1.00	1.00	0.16	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	565	1801	1280	283	1801	1531	1711	3421	1488	1711	3421	1319
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	538	193	165	403	136	147	651	283	107	809	133
RTOR Reduction (vph)	0	0	126	0	0	0	0	0	80	0	0	82
Lane Group Flow (vph)	116	538	67	165	403	136	147	651	203	107	809	51
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	55.1	41.7	41.7	55.1	41.7	41.7	12.2	31.9	45.3	11.6	31.1	44.5
Effective Green, g (s)	55.1	41.7	41.7	55.1	41.7	41.7	12.2	31.9	45.3	11.6	31.1	44.5
Actuated g/C Ratio	0.46	0.35	0.35	0.46	0.35	0.35	0.10	0.27	0.38	0.10	0.26	0.37
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	387	625	444	289	625	532	173	909	561	165	886	489
v/s Ratio Prot	0.03	c0.30		c0.06	0.22		c0.09	0.19	0.04	0.06	c0.24	0.01
v/s Ratio Perm	0.10		0.05	0.20		0.09			0.10			0.03
v/c Ratio	0.30	0.86	0.15	0.57	0.64	0.26	0.85	0.72	0.36	0.65	0.91	0.10
Uniform Delay, d1	20.2	36.4	27.0	23.4	32.9	28.0	53.0	39.9	26.9	52.2	43.1	24.7
Progression Factor	0.64	0.71	0.91	1.06	0.91	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	12.2	0.6	1.2	3.8	0.9	29.2	3.4	0.1	6.4	14.2	0.0
Delay (s)	13.1	38.1	25.1	26.0	33.8	26.0	82.2	43.3	27.1	58.7	57.4	24.7
Level of Service	B	D	C	C	C	C	F	D	C	E	E	C
Approach Delay (s)		31.7			30.5			44.4			53.4	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	844	20	26	564	2	42	0	26	7	0	56
Future Volume (veh/h)	4	844	20	26	564	2	42	0	26	7	0	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	917	22	52	1128	2	46	0	28	8	0	61
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	1281	1086	555	1433	1215	63	0	237	63	0	237
Arrive On Green	1.00	1.00	1.00	0.05	0.77	0.77	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	498	1870	1585	1781	1870	1585	18	0	1585	18	0	1585
Grp Volume(v), veh/h	4	917	22	52	1128	2	46	0	28	8	0	61
Grp Sat Flow(s),veh/h/ln	498	1870	1585	1781	1870	1585	18	0	1585	18	0	1585
Q Serve(g_s), s	0.4	0.0	0.0	0.9	42.6	0.0	0.2	0.0	1.8	0.2	0.0	4.1
Cycle Q Clear(g_c), s	32.3	0.0	0.0	0.9	42.6	0.0	17.9	0.0	1.8	17.9	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	269	1281	1086	555	1433	1215	63	0	237	63	0	237
V/C Ratio(X)	0.01	0.72	0.02	0.09	0.79	0.00	0.73	0.00	0.12	0.13	0.00	0.26
Avail Cap(c_a), veh/h	269	1281	1086	692	1433	1215	256	0	465	261	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.64	0.64	0.64	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.3	0.0	0.0	3.9	8.3	3.3	60.0	0.0	44.2	60.0	0.0	45.1
Incr Delay (d2), s/veh	0.1	2.2	0.0	0.0	4.4	0.0	6.1	0.0	0.1	0.3	0.0	0.2
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	0.0	0.8	0.0	0.3	15.1	0.0	1.5	0.0	0.7	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	2.2	0.0	3.9	12.7	3.3	66.1	0.0	44.3	60.3	0.0	45.3
LnGrp LOS	A	A	A	A	B	A	E	A	D	E	A	D
Approach Vol, veh/h		943			1182			74			69	
Approach Delay, s/veh		2.2			12.3			57.8			47.1	
Approach LOS		A			B			E			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		97.0		23.0	9.8	87.3		23.0				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		44.6		19.9	2.9	34.3		19.9				
Green Ext Time (p_c), s		20.6		0.1	0.0	12.6		0.1				

Intersection Summary		
HCM 6th Ctrl Delay	10.6	
HCM 6th LOS	B	

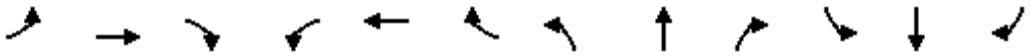
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	842	39	24	567	31	12
Future Volume (vph)	842	39	24	567	31	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	1801	1531	1711	1801	1673	
Flt Permitted	1.00	1.00	0.29	1.00	0.97	
Satd. Flow (perm)	1801	1531	519	1801	1673	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	915	42	26	616	34	13
RTOR Reduction (vph)	0	2	0	0	12	0
Lane Group Flow (vph)	915	40	26	616	35	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	446	1548	104	
v/s Ratio Prot	c0.51			0.34		
v/s Ratio Perm		0.03	0.05		c0.02	
v/c Ratio	0.59	0.03	0.06	0.40	0.33	
Uniform Delay, d1	2.4	1.2	1.2	1.8	53.9	
Progression Factor	0.38	0.25	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.0	0.2	0.8	0.7	
Delay (s)	2.4	0.3	1.5	2.6	54.6	
Level of Service	A	A	A	A	D	
Approach Delay (s)	2.3			2.5	54.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

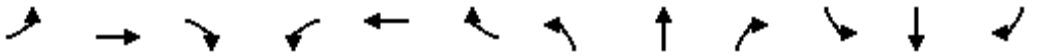
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	925	8	9	413	11	37	1	26	184	10	140
Future Volume (vph)	26	925	8	9	413	11	37	1	26	184	10	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1799	1531		1654			1653	
Flt Permitted		0.98	1.00		0.55	1.00		0.69			0.79	
Satd. Flow (perm)		1763	1531		993	1531		1179			1343	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	1005	9	10	449	12	40	1	28	200	11	152
RTOR Reduction (vph)	0	0	5	0	0	6	0	24	0	0	18	0
Lane Group Flow (vph)	0	1033	4	0	459	6	0	45	0	0	345	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		56.0	56.0		56.0	56.0		9.0			41.5	
Effective Green, g (s)		56.0	56.0		56.0	56.0		9.0			41.5	
Actuated g/C Ratio		0.47	0.47		0.47	0.47		0.08			0.35	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		822	714		463	714		88			464	
v/s Ratio Prot												
v/s Ratio Perm		c0.59	0.00		0.46	0.00		c0.04			c0.26	
v/c Ratio		1.26	0.01		0.99	0.01		0.51			0.74	
Uniform Delay, d1		32.0	17.1		31.8	17.1		53.4			34.6	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		125.4	0.0		39.7	0.0		2.1			5.6	
Delay (s)		157.4	17.1		71.5	17.1		55.5			40.1	
Level of Service		F	B		E	B		E			D	
Approach Delay (s)		156.2			70.1			55.5			40.1	
Approach LOS		F			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	110.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	100.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	762	50	624	391	19	55	564	962	295	833	51
Future Volume (veh/h)	57	762	50	624	391	19	55	564	962	295	833	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	828	0	678	425	0	60	613	1046	321	905	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	314	1366		357	1543		215	1196	680	279	1568	95
Arrive On Green	0.27	0.27	0.00	0.10	0.43	0.00	0.34	0.34	0.34	0.08	0.46	0.46
Sat Flow, veh/h	951	5274	0	3456	3647	0	582	3554	1534	3456	3397	206
Grp Volume(v), veh/h	62	828	0	678	425	0	60	613	1046	321	473	487
Grp Sat Flow(s),veh/h/ln	951	1702	0	1728	1777	0	582	1777	1534	1728	1777	1826
Q Serve(g_s), s	6.1	17.0	0.0	12.4	9.2	0.0	10.1	16.6	40.4	9.7	23.5	23.5
Cycle Q Clear(g_c), s	6.1	17.0	0.0	12.4	9.2	0.0	18.6	16.6	40.4	9.7	23.5	23.5
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	314	1366		357	1543		215	1196	680	279	820	843
V/C Ratio(X)	0.20	0.61		1.90	0.28		0.28	0.51	1.54	1.15	0.58	0.58
Avail Cap(c_a), veh/h	359	1604		357	1543		215	1196	680	279	820	843
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	38.4	0.0	53.8	21.8	0.0	36.0	31.9	33.8	55.2	23.7	23.7
Incr Delay (d2), s/veh	1.2	1.8	0.0	414.8	0.1	0.0	3.2	1.6	249.6	100.3	3.0	2.9
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	1.5	7.2	0.0	25.9	3.8	0.0	1.6	7.3	66.1	8.1	10.3	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	40.2	0.0	468.6	21.9	0.0	39.2	33.5	283.4	155.5	26.7	26.6
LnGrp LOS	D	D		F	C		D	C	F	F	C	C
Approach Vol, veh/h		890			1103			1719			1281	
Approach Delay, s/veh		39.9			296.5			185.7			58.9	
Approach LOS		D			F			F			E	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	20.0	38.4	15.0	46.6		58.4		61.6				
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2				
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8				
Max Q Clear Time (g_c+I1), s	14.4	19.0	11.7	42.4		11.2		25.5				
Green Ext Time (p_c), s	0.0	11.4	0.0	0.0		3.0		8.9				

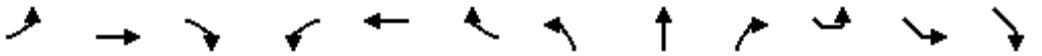
Intersection Summary		
HCM 6th Ctrl Delay	151.7	
HCM 6th LOS	F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

FUTURE PLUS PROJECT



Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	341	1368	97	107	1565	208	128	379	82	387	571	402
Future Volume (vph)	341	1368	97	107	1565	208	128	379	82	387	571	402
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.79	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1158	1711	4916	1404	1711	3421	1217	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1158	1711	4916	1404	1711	3421	1217	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	367	1471	104	113	1647	219	136	403	87	430	634	447
RTOR Reduction (vph)	0	0	64	0	0	104	0	0	60	211	0	0
Lane Group Flow (vph)	367	1471	40	113	1647	115	136	403	27	219	634	447
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.8	45.9	45.9	9.3	39.4	39.4	25.8	25.8	37.1	12.0	12.0	12.0
Effective Green, g (s)	15.8	45.9	45.9	9.3	39.4	39.4	25.8	25.8	37.1	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.38	0.38	0.08	0.33	0.33	0.22	0.22	0.31	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	437	1880	442	132	1614	460	367	735	376	171	171	153
v/s Ratio Prot	c0.11	c0.30		0.07	c0.34		0.08	c0.12	0.01	0.13	c0.37	0.29
v/s Ratio Perm			0.03			0.08			0.02			
v/c Ratio	0.84	0.78	0.09	0.86	1.02	0.25	0.37	0.55	0.07	1.28	3.71	2.92
Uniform Delay, d1	50.9	32.7	23.7	54.7	40.3	29.5	40.2	41.9	29.3	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.30	0.63	0.69	1.32	1.31	1.12	1.00	1.00	1.00
Incremental Delay, d2	12.7	3.3	0.4	29.8	24.5	1.0	0.1	0.3	0.0	164.3	1232.7	882.2
Delay (s)	63.6	36.0	24.1	100.7	49.7	21.3	53.2	55.4	32.8	218.3	1286.7	936.2
Level of Service	E	D	C	F	D	C	D	E	C	F	F	F
Approach Delay (s)		40.6			49.5			51.8			677.0	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	238.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	443
Future Volume (vph)	443
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	492
RTOR Reduction (vph)	211
Lane Group Flow (vph)	281
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.8
Effective Green, g (s)	27.8
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	345
v/s Ratio Prot	0.11
v/s Ratio Perm	0.08
v/c Ratio	0.81
Uniform Delay, d1	43.6
Progression Factor	1.00
Incremental Delay, d2	13.0
Delay (s)	56.6
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	124	1206	443	15	108	1493	158	232	683	110	122	381
Future Volume (vph)	124	1206	443	15	108	1493	158	232	683	110	122	381
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Lane Util. Factor	0.97	0.91	1.00		1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.95		1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3319	4916	1448		1711	4916	1333	3385	3490	1501	1711	3349
Flt Permitted	0.95	1.00	1.00		0.18	1.00	1.00	0.95	1.00	1.00	0.45	1.00
Satd. Flow (perm)	3319	4916	1448		316	4916	1333	3385	3490	1501	809	3349
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%
Adj. Flow (vph)	133	1297	476	16	114	1572	166	122	359	58	142	443
RTOR Reduction (vph)	0	0	240	0	0	0	74	0	0	44	0	11
Lane Group Flow (vph)	133	1297	236	0	130	1572	92	122	359	14	142	494
Confl. Peds. (#/hr)			24				70			23		
Confl. Bikes (#/hr)			10				31			4		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Prot	NA	Perm		Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6			5	2		3	8		7	4
Permitted Phases			6				2			8	4	
Actuated Green, G (s)	12.0	37.6	37.6		22.8	48.4	48.4	10.0	28.0	28.0	38.0	28.0
Effective Green, g (s)	12.0	37.6	37.6		22.8	48.4	48.4	10.0	28.0	28.0	38.0	28.0
Actuated g/C Ratio	0.10	0.31	0.31		0.19	0.40	0.40	0.08	0.23	0.23	0.32	0.23
Clearance Time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Vehicle Extension (s)	3.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6
Lane Grp Cap (vph)	331	1540	453		60	1982	537	282	814	350	331	781
v/s Ratio Prot	0.04	c0.26				0.32		c0.04	0.10		0.04	c0.15
v/s Ratio Perm			0.16		c0.41		0.07			0.01	0.10	
v/c Ratio	0.40	0.84	0.52		2.17	0.79	0.17	0.43	0.44	0.04	0.43	0.63
Uniform Delay, d1	50.6	38.4	33.8		48.6	31.4	22.9	52.3	39.3	35.6	30.7	41.4
Progression Factor	0.91	0.90	0.91		1.00	0.90	0.53	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.6	0.4		572.8	3.2	0.6	1.1	0.8	0.1	0.9	2.6
Delay (s)	46.0	35.1	31.2		621.4	31.3	12.9	53.4	40.1	35.7	31.6	44.0
Level of Service	D	D	C		F	C	B	D	D	D	C	D
Approach Delay (s)		34.9				70.7			42.6			41.3
Approach LOS		C				E			D			D

Intersection Summary			
HCM 2000 Control Delay	50.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	53
Future Volume (vph)	53
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.86
Growth Factor (vph)	100%
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Confl. Bikes (#/hr)	2
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	20	1252	15	14	1752	11	4	2	1	4	1
Future Volume (vph)	25	20	1252	15	14	1752	11	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1705	4916	1443	1703	4916	1383		1727	1481		1599
Flt Permitted		0.09	1.00	1.00	0.18	1.00	1.00		0.79	1.00		0.88
Satd. Flow (perm)		166	4916	1443	316	4916	1383		1415	1481		1432
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	27	22	1391	17	16	1947	12	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	6
Lane Group Flow (vph)	0	49	1391	14	16	1947	10	0	12	0	0	7
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		139	4121	1209	264	4121	1159		103	108		105
v/s Ratio Prot			0.28			c0.40						
v/s Ratio Perm		0.30		0.01	0.05		0.01		c0.01	0.00		0.01
v/c Ratio		0.35	0.34	0.01	0.06	0.47	0.01		0.12	0.00		0.07
Uniform Delay, d1		2.2	2.2	1.6	1.7	2.6	1.6		52.0	51.5		51.8
Progression Factor		2.54	2.65	4.72	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		5.2	0.2	0.0	0.4	0.4	0.0		0.5	0.0		0.3
Delay (s)		10.8	6.0	7.5	2.1	3.0	1.6		52.5	51.5		52.1
Level of Service		B	A	A	A	A	A		D	D		D
Approach Delay (s)			6.2			3.0			52.3			52.1
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	4.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1133	18	52	1588	159	115	201	13	98	73	19
Future Volume (veh/h)	67	1133	18	52	1588	159	115	201	13	98	73	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	1232	20	57	1726	173	125	218	14	107	79	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	162	3174	942	335	3174	931	176	267	16	189	132	31
Arrive On Green	1.00	1.00	1.00	0.62	0.62	0.62	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	238	5106	1515	442	5106	1497	488	961	59	516	473	112
Grp Volume(v), veh/h	73	1232	20	57	1726	173	357	0	0	207	0	0
Grp Sat Flow(s),veh/h/ln	238	1702	1515	442	1702	1497	1508	0	0	1101	0	0
Q Serve(g_s), s	22.7	0.0	0.0	6.7	23.2	5.9	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	45.8	0.0	0.0	6.7	23.2	5.9	27.3	0.0	0.0	21.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.52		0.10
Lane Grp Cap(c), veh/h	162	3174	942	335	3174	931	460	0	0	352	0	0
V/C Ratio(X)	0.45	0.39	0.02	0.17	0.54	0.19	0.78	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	162	3174	942	335	3174	931	648	0	0	514	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.19	0.19	0.19	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.1	0.0	0.0	9.9	13.0	9.7	41.1	0.0	0.0	38.2	0.0	0.0
Incr Delay (d2), s/veh	8.8	0.4	0.0	0.2	0.1	0.1	3.9	0.0	0.0	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.1	0.0	0.6	8.1	1.8	10.6	0.0	0.0	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.0	0.4	0.0	10.1	13.1	9.8	45.0	0.0	0.0	39.8	0.0	0.0
LnGrp LOS	B	A	A	B	B	A	D	A	A	D	A	A
Approach Vol, veh/h		1325			1956			357			207	
Approach Delay, s/veh		1.2			12.7			45.0			39.8	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.1		39.9		80.1		39.9				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		25.2		23.1		47.8		29.3				
Green Ext Time (p_c), s		27.2		1.3		9.7		2.2				

Intersection Summary												
HCM 6th Ctrl Delay			13.2									
HCM 6th LOS			B									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	922	117	201	1274	44	163	1654	57	46	869	272
Future Volume (veh/h)	268	922	117	201	1274	44	163	1654	57	46	869	272
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	308	1060	134	223	1416	0	185	1880	65	48	915	286
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1345	407	285	1584		277	1869	65	178	1349	420
Arrive On Green	0.03	0.09	0.09	0.12	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1545	1781	5106	1585	1781	5063	175	1781	3826	1191
Grp Volume(v), veh/h	308	1060	134	223	1416	0	185	1263	682	48	814	387
Grp Sat Flow(s),veh/h/ln	1728	1702	1545	1781	1702	1585	1781	1702	1834	1781	1702	1613
Q Serve(g_s), s	8.8	24.4	7.6	9.0	31.8	0.0	7.8	44.3	44.3	1.9	24.4	24.5
Cycle Q Clear(g_c), s	8.8	24.4	7.6	9.0	31.8	0.0	7.8	44.3	44.3	1.9	24.4	24.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.74
Lane Grp Cap(c), veh/h	408	1345	407	285	1584		277	1257	677	178	1200	569
V/C Ratio(X)	0.75	0.79	0.33	0.78	0.89		0.67	1.01	1.01	0.27	0.68	0.68
Avail Cap(c_a), veh/h	408	1413	427	285	1584		277	1257	677	208	1257	596
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	51.5	27.0	49.1	39.5	0.0	25.5	37.8	37.9	28.3	33.1	33.1
Incr Delay (d2), s/veh	7.2	4.3	2.0	13.1	8.2	0.0	6.0	26.6	36.4	0.8	1.4	3.0
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	4.3	11.7	3.1	7.3	14.0	0.0	3.6	22.2	25.8	0.8	10.0	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	55.9	29.0	62.2	47.7	0.0	31.5	64.5	74.3	29.1	34.5	36.1
LnGrp LOS	D	E	C	E	D		C	F	F	C	C	D
Approach Vol, veh/h		1502			1639			2130			1249	
Approach Delay, s/veh		51.9			49.7			64.8			34.8	
Approach LOS		D			D			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	51.0	19.6	37.4	14.0	49.0	14.0	43.0
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	13.9	46.3	11.0	26.4	9.8	26.5	10.8	33.8
Green Ext Time (p_c), s	0.0	0.0	0.0	5.2	0.0	7.5	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	52.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	8	22	998	879	34
Future Volume (veh/h)	14	8	22	998	879	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	9	24	1085	1758	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	75	67	295	2900	2580	1091
Arrive On Green	0.04	0.04	0.05	0.82	0.71	0.71
Sat Flow, veh/h	1781	1585	1781	3647	3705	1526
Grp Volume(v), veh/h	15	9	24	1085	1758	68
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1526
Q Serve(g_s), s	0.6	0.4	0.2	6.0	20.1	1.0
Cycle Q Clear(g_c), s	0.6	0.4	0.2	6.0	20.1	1.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	75	67	295	2900	2580	1091
V/C Ratio(X)	0.20	0.13	0.08	0.37	0.68	0.06
Avail Cap(c_a), veh/h	693	616	619	2900	2910	1230
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.3	34.2	5.3	1.8	5.9	3.2
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.2	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.4	0.1	0.6	5.0	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.8	34.5	5.3	2.0	6.7	3.2
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	24			1109	1826	
Approach Delay, s/veh	34.7			2.0	6.6	
Approach LOS	C			A	A	

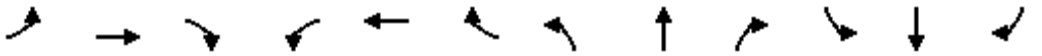
Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	65.7		8.3	7.5	58.2
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	8.0		2.6	2.2	22.1
Green Ext Time (p_c), s	20.8		0.0	0.0	30.9

Intersection Summary	
HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	328	54	119	500	238	33	303	92	193	282	87
Future Volume (vph)	99	328	54	119	500	238	33	303	92	193	282	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1713		1711	1801	1531	1711	1801	1412
Flt Permitted	0.14	1.00	1.00	0.48	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	261	1801	1397	863	1713		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	357	59	129	543	259	36	329	100	210	307	95
RTOR Reduction (vph)	0	0	27	0	13	0	0	0	49	0	0	0
Lane Group Flow (vph)	108	357	32	129	789	0	36	329	51	210	307	95
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	64.7	64.7	64.7	64.7	64.7		6.0	27.4	27.4	12.6	34.0	34.0
Effective Green, g (s)	64.7	64.7	64.7	64.7	64.7		6.0	27.4	27.4	12.6	34.0	34.0
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.05	0.23	0.23	0.10	0.28	0.28
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	140	971	753	465	923		85	411	349	179	510	400
v/s Ratio Prot		0.20			c0.46		0.02	c0.18		c0.12	0.17	
v/s Ratio Perm	0.41		0.02	0.15					0.03			0.07
v/c Ratio	0.77	0.37	0.04	0.28	0.85		0.42	0.80	0.15	1.17	0.60	0.24
Uniform Delay, d1	21.8	15.9	13.0	15.0	23.6		55.3	43.7	37.0	53.7	37.2	33.0
Progression Factor	1.00	1.00	1.00	0.75	0.87		1.00	1.00	1.00	1.59	0.45	0.42
Incremental Delay, d2	32.9	1.1	0.1	1.3	8.7		1.2	10.1	0.1	83.6	0.1	0.0
Delay (s)	54.7	17.0	13.1	12.5	29.2		56.6	53.8	37.0	169.1	17.0	13.9
Level of Service	D	B	B	B	C		E	D	D	F	B	B
Approach Delay (s)		24.3			26.9			50.4			68.7	
Approach LOS		C			C			D			E	

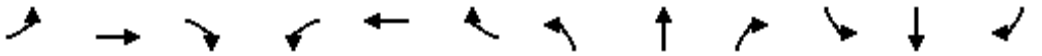
Intersection Summary			
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	460	137	104	790	66	67
Future Volume (vph)	460	137	104	790	66	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.42	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	765	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	500	149	113	859	72	73
RTOR Reduction (vph)	0	16	0	0	0	62
Lane Group Flow (vph)	500	133	113	859	72	11
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.8	88.8	101.8	101.8	8.9	17.9
Effective Green, g (s)	88.8	88.8	101.8	101.8	8.9	17.9
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.07	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1332	1132	719	1527	126	279
v/s Ratio Prot	0.28		0.01	c0.48		0.00
v/s Ratio Perm		0.09	0.12		c0.04	0.00
v/c Ratio	0.38	0.12	0.16	0.56	0.57	0.04
Uniform Delay, d1	5.6	4.4	2.0	2.6	53.7	43.7
Progression Factor	1.90	2.48	0.61	1.25	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.0	0.7	3.8	0.0
Delay (s)	11.3	11.2	1.3	4.0	57.6	43.7
Level of Service	B	B	A	A	E	D
Approach Delay (s)	11.3			3.7	50.6	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	311	111	109	630	161	137	884	70	72	681	120
Future Volume (vph)	107	311	111	109	630	161	137	884	70	72	681	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1280	1711	1801	1531	1711	3421	1484	1711	3421	1303
Flt Permitted	0.09	1.00	1.00	0.40	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	166	1801	1280	727	1801	1531	1711	3421	1484	1711	3421	1303
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	338	121	118	685	175	149	961	76	78	740	130
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	47	0	0	86
Lane Group Flow (vph)	116	338	44	118	685	175	149	961	29	78	740	44
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	53.4	43.3	43.3	53.4	43.3	43.3	14.5	36.3	46.4	8.9	30.5	40.6
Effective Green, g (s)	53.4	43.3	43.3	53.4	43.3	43.3	14.5	36.3	46.4	8.9	30.5	40.6
Actuated g/C Ratio	0.44	0.36	0.36	0.44	0.36	0.36	0.12	0.30	0.39	0.07	0.25	0.34
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	203	649	461	406	649	552	206	1034	573	126	869	440
v/s Ratio Prot	c0.05	0.19		0.02	c0.38		0.09	c0.28	0.00	0.05	c0.22	0.01
v/s Ratio Perm	0.20		0.03	0.10		0.11			0.02			0.03
v/c Ratio	0.57	0.52	0.09	0.29	1.06	0.32	0.72	0.93	0.05	0.62	0.85	0.10
Uniform Delay, d1	26.7	30.2	25.4	20.5	38.4	27.7	50.8	40.6	23.0	53.9	42.6	27.2
Progression Factor	0.95	0.58	1.00	0.87	0.91	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	2.8	0.4	0.0	29.0	0.1	10.1	14.5	0.0	6.2	8.8	0.0
Delay (s)	27.6	20.4	25.8	17.9	63.8	24.6	61.0	55.1	23.0	60.1	51.4	27.2
Level of Service	C	C	C	B	E	C	E	E	C	E	D	C
Approach Delay (s)		23.0			51.2			53.8			48.8	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	390	31	19	850	31	42	0	10	0	0	9
Future Volume (veh/h)	60	390	31	19	850	31	42	0	10	0	0	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	424	34	38	1700	34	46	0	11	0	0	10
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1479	1254	873	1620	1373	130	0	79	0	93	79
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	279	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Grp Volume(v), veh/h	65	424	34	38	1700	34	46	0	11	0	0	10
Grp Sat Flow(s),veh/h/ln	279	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	103.9	0.4	3.9	0.0	0.8	0.0	0.0	0.7
Cycle Q Clear(g_c), s	94.9	0.0	0.0	0.4	103.9	0.4	3.9	0.0	0.8	0.0	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	60	1479	1254	873	1620	1373	130	0	79	0	93	79
V/C Ratio(X)	1.08	0.29	0.03	0.04	1.05	0.02	0.35	0.00	0.14	0.00	0.00	0.13
Avail Cap(c_a), veh/h	60	1479	1254	1021	1620	1373	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	0.0	1.4	8.0	1.1	56.0	0.0	54.6	0.0	0.0	54.5
Incr Delay (d2), s/veh	134.4	0.4	0.0	0.0	36.5	0.0	0.6	0.0	0.3	0.0	0.0	0.3
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	4.0	0.2	0.0	0.1	32.9	0.1	1.4	0.0	0.3	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	181.8	0.4	0.0	1.4	44.6	1.1	56.6	0.0	54.9	0.0	0.0	54.8
LnGrp LOS	F	A	A	A	F	A	E	A	D	A	A	D
Approach Vol, veh/h		523			1772			57			10	
Approach Delay, s/veh		23.0			42.8			56.3			54.8	
Approach LOS		C			D			E			D	

Timer - Assigned Phs	2	4	5	6	8
Phs Duration (G+Y+Rc), s	109.2	10.8	9.0	100.2	10.8
Change Period (Y+Rc), s	5.3	* 4.8	4.0	5.3	* 4.8
Max Green Setting (Gmax), s	74.7	* 35	15.0	55.7	* 35
Max Q Clear Time (g_c+I1), s	105.9	5.9	2.4	96.9	2.7
Green Ext Time (p_c), s	0.0	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

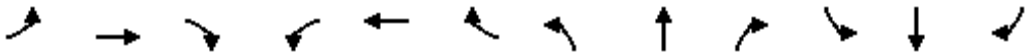
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	397	11	1	913	63	13
Future Volume (vph)	397	11	1	913	63	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1689	
Flt Permitted	1.00	1.00	0.51	1.00	0.96	
Satd. Flow (perm)	1801	1531	916	1801	1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	432	12	1	992	68	14
RTOR Reduction (vph)	0	2	0	0	7	0
Lane Group Flow (vph)	432	10	1	992	75	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	101.8	101.8	101.8	101.8	8.9	
Effective Green, g (s)	101.8	101.8	101.8	101.8	8.9	
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.07	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1527	1298	777	1527	125	
v/s Ratio Prot	0.24			c0.55		
v/s Ratio Perm		0.01	0.00		c0.04	
v/c Ratio	0.28	0.01	0.00	0.65	0.60	
Uniform Delay, d1	1.8	1.4	1.4	3.1	53.8	
Progression Factor	0.95	0.61	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	2.2	5.0	
Delay (s)	2.2	0.9	1.4	5.2	58.8	
Level of Service	A	A	A	A	E	
Approach Delay (s)	2.1			5.2	58.8	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	410	25	6	978	14	54	1	21	57	23	140
Future Volume (vph)	17	410	25	6	978	14	54	1	21	57	23	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.91	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.99	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1625	
Flt Permitted		0.58	1.00		1.00	1.00		0.37			0.89	
Satd. Flow (perm)		1053	1531		1795	1531		636			1464	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	446	27	7	1063	15	59	1	23	62	25	152
RTOR Reduction (vph)	0	0	11	0	0	6	0	12	0	0	57	0
Lane Group Flow (vph)	0	464	16	0	1070	9	0	71	0	0	182	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		73.2	73.2		73.2	73.2		14.6			18.7	
Effective Green, g (s)		73.2	73.2		73.2	73.2		14.6			18.7	
Actuated g/C Ratio		0.61	0.61		0.61	0.61		0.12			0.16	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		642	933		1094	933		77			228	
v/s Ratio Prot												
v/s Ratio Perm		0.44	0.01		c0.60	0.01		c0.11			c0.12	
v/c Ratio		0.72	0.02		0.98	0.01		0.92			0.80	
Uniform Delay, d1		16.3	9.2		22.6	9.2		52.1			48.8	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		6.9	0.0		22.4	0.0		73.4			16.3	
Delay (s)		23.2	9.3		45.0	9.2		125.5			65.1	
Level of Service		C	A		D	A		F			E	
Approach Delay (s)		22.5			44.6			125.5			65.1	
Approach LOS		C			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	240	31	971	799	30	55	886	607	176	545	31
Future Volume (veh/h)	41	240	31	971	799	30	55	886	607	176	545	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	261	0	1055	868	0	60	963	660	191	592	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	1096		357	1355		377	1418	778	247	1755	101
Arrive On Green	0.21	0.21	0.00	0.10	0.38	0.00	0.40	0.40	0.40	0.07	0.51	0.51
Sat Flow, veh/h	633	5274	0	3456	3647	0	794	3554	1539	3456	3410	196
Grp Volume(v), veh/h	45	261	0	1055	868	0	60	963	660	191	308	318
Grp Sat Flow(s),veh/h/ln	633	1702	0	1728	1777	0	794	1777	1539	1728	1777	1829
Q Serve(g_s), s	7.5	5.1	0.0	12.4	24.0	0.0	5.9	26.8	44.9	6.5	12.2	12.3
Cycle Q Clear(g_c), s	11.5	5.1	0.0	12.4	24.0	0.0	5.9	26.8	44.9	6.5	12.2	12.3
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	175	1096		357	1355		377	1418	778	247	914	941
V/C Ratio(X)	0.26	0.24		2.95	0.64		0.16	0.68	0.85	0.77	0.34	0.34
Avail Cap(c_a), veh/h	238	1604		357	1355		377	1418	778	279	914	941
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	39.0	0.0	53.8	30.4	0.0	23.4	29.7	26.0	54.8	17.1	17.1
Incr Delay (d2), s/veh	3.1	0.5	0.0	887.1	1.1	0.0	0.9	2.6	11.2	11.3	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.2	0.0	49.3	10.3	0.0	1.2	11.7	18.0	3.2	5.1	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	39.5	0.0	940.9	31.5	0.0	24.3	32.4	37.2	66.1	18.1	18.1
LnGrp LOS	D	D		F	C		C	C	D	E	B	B
Approach Vol, veh/h		306			1923			1683			817	
Approach Delay, s/veh		40.5			530.4			34.0			29.3	
Approach LOS		D			F			C			C	

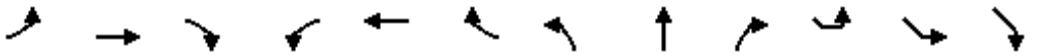
Timer - Assigned Phs	1	2	3	4	6	8
Phs Duration (G+Y+Rc), s	20.0	32.0	13.9	54.1	52.0	68.0
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2	* 6.3	6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8	* 38	49.8
Max Q Clear Time (g_c+I1), s	14.4	13.5	8.5	46.9	26.0	14.3
Green Ext Time (p_c), s	0.0	4.7	0.1	0.0	4.8	5.8

Intersection Summary	
HCM 6th Ctrl Delay	235.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	200	1390	102	181	1628	175	148	462	266	155	428	262
Future Volume (vph)	200	1390	102	181	1628	175	148	462	266	155	428	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1156	1711	4916	1408	1711	3421	1257	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1156	1711	4916	1408	1711	3421	1257	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	215	1495	110	191	1714	184	157	491	283	172	476	291
RTOR Reduction (vph)	0	0	74	0	0	97	0	0	63	140	0	0
Lane Group Flow (vph)	215	1495	36	191	1714	87	157	491	220	33	476	291
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.9	39.0	39.0	15.1	45.2	45.2	26.9	26.9	44.0	12.0	12.0	12.0
Effective Green, g (s)	8.9	39.0	39.0	15.1	45.2	45.2	26.9	26.9	44.0	12.0	12.0	12.0
Actuated g/C Ratio	0.07	0.32	0.32	0.13	0.38	0.38	0.22	0.22	0.37	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	246	1597	375	215	1851	530	383	766	460	171	171	153
v/s Ratio Prot	0.06	0.30		c0.11	c0.35		0.09	c0.14	0.06	0.02	c0.28	0.19
v/s Ratio Perm			0.03			0.06			0.11			
v/c Ratio	0.87	0.94	0.10	0.89	0.93	0.16	0.41	0.64	0.48	0.19	2.78	1.90
Uniform Delay, d1	55.0	39.3	28.2	51.6	35.8	24.9	39.8	42.2	29.2	49.5	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.34	0.62	0.72	0.91	0.89	0.60	1.00	1.00	1.00
Incremental Delay, d2	26.5	11.7	0.5	27.7	8.1	0.6	0.2	0.8	0.2	0.7	818.7	429.3
Delay (s)	81.5	51.0	28.7	96.8	30.3	18.4	36.2	38.5	17.7	50.3	872.7	483.3
Level of Service	F	D	C	F	C	B	D	D	B	D	F	F
Approach Delay (s)		53.3			35.3			31.8			451.2	
Approach LOS		D			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	127.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	314
Future Volume (vph)	314
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1465
Flt Permitted	1.00
Satd. Flow (perm)	1465
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	349
RTOR Reduction (vph)	206
Lane Group Flow (vph)	143
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	20.9
Effective Green, g (s)	20.9
Actuated g/C Ratio	0.17
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	255
v/s Ratio Prot	0.04
v/s Ratio Perm	0.06
v/c Ratio	0.56
Uniform Delay, d1	45.4
Progression Factor	1.00
Incremental Delay, d2	1.7
Delay (s)	47.1
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	89	1626	366	3	150	1374	88	265	433	236	115	457
Future Volume (vph)	89	1626	366	3	150	1374	88	265	433	236	115	457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Lane Util. Factor	0.97	0.91	1.00		1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.95		1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3319	4916	1448		1711	4916	1332	3385	3490	1501	1711	3360
Flt Permitted	0.95	1.00	1.00		0.19	1.00	1.00	0.95	1.00	1.00	0.61	1.00
Satd. Flow (perm)	3319	4916	1448		348	4916	1332	3385	3490	1501	1090	3360
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%
Adj. Flow (vph)	96	1748	394	3	158	1446	93	139	228	124	134	531
RTOR Reduction (vph)	0	0	148	0	0	0	57	0	0	93	0	8
Lane Group Flow (vph)	96	1748	246	0	161	1446	36	139	228	31	134	585
Confl. Peds. (#/hr)			24				70			23		
Confl. Bikes (#/hr)			10				31			4		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Prot	NA	Perm		Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6			5	2		3	8		7	4
Permitted Phases			6				2			8	4	
Actuated Green, G (s)	12.0	37.6	37.6		20.7	46.3	46.3	10.0	30.1	30.1	40.1	30.1
Effective Green, g (s)	12.0	37.6	37.6		20.7	46.3	46.3	10.0	30.1	30.1	40.1	30.1
Actuated g/C Ratio	0.10	0.31	0.31		0.17	0.39	0.39	0.08	0.25	0.25	0.33	0.25
Clearance Time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Vehicle Extension (s)	3.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6
Lane Grp Cap (vph)	331	1540	453		60	1896	513	282	875	376	415	842
v/s Ratio Prot	0.03	c0.36				0.29		c0.04	0.07		0.03	c0.17
v/s Ratio Perm			0.17		c0.46		0.03			0.02	0.08	
v/c Ratio	0.29	1.14	0.54		2.68	0.76	0.07	0.49	0.26	0.08	0.32	0.69
Uniform Delay, d1	50.1	41.2	34.1		49.6	32.1	23.3	52.6	36.0	34.4	28.9	40.8
Progression Factor	0.82	0.79	0.53		1.00	0.82	0.39	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	61.7	0.4		799.7	2.8	0.2	1.4	0.3	0.2	0.5	3.5
Delay (s)	41.2	94.2	18.5		849.3	29.2	9.2	53.9	36.4	34.6	29.3	44.3
Level of Service	D	F	B		F	C	A	D	D	C	C	D
Approach Delay (s)		78.6				105.8			40.9			41.5
Approach LOS		E				F			D			D

Intersection Summary			
HCM 2000 Control Delay	78.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	53
Future Volume (vph)	53
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.86
Growth Factor (vph)	100%
Adj. Flow (vph)	62
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Confl. Bikes (#/hr)	2
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	114	17	1988	40	117	1366	10	22	1	15	118	5
Future Volume (vph)	114	17	1988	40	117	1366	10	22	1	15	118	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		0.99	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1702	4916	1442	1711	4916	1380		1704	1486		1657
Flt Permitted		0.14	1.00	1.00	0.06	1.00	1.00		0.70	1.00		0.75
Satd. Flow (perm)		251	4916	1442	100	4916	1380		1243	1486		1290
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	124	19	2209	44	130	1518	11	42	2	28	144	6
RTOR Reduction (vph)	0	0	0	8	0	0	3	0	0	12	0	11
Lane Group Flow (vph)	0	143	2209	36	130	1518	8	0	44	16	0	180
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		86.6	86.6	86.6	86.6	86.6	86.6		22.8	22.8		22.8
Effective Green, g (s)		86.6	86.6	86.6	86.6	86.6	86.6		22.8	22.8		22.8
Actuated g/C Ratio		0.72	0.72	0.72	0.72	0.72	0.72		0.19	0.19		0.19
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		181	3547	1040	72	3547	995		236	282		245
v/s Ratio Prot			0.45			0.31						
v/s Ratio Perm		0.57		0.03	c1.30		0.01		0.04	0.01		c0.14
v/c Ratio		0.79	0.62	0.04	1.81	0.43	0.01		0.19	0.06		0.74
Uniform Delay, d1		10.8	8.4	4.8	16.7	6.7	4.7		40.8	39.8		45.8
Progression Factor		1.87	1.67	1.97	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		18.5	0.5	0.0	411.8	0.4	0.0		0.4	0.1		10.9
Delay (s)		38.7	14.6	9.4	428.5	7.1	4.7		41.2	39.9		56.7
Level of Service		D	B	A	F	A	A		D	D		E
Approach Delay (s)			16.0			40.1			40.7			56.7
Approach LOS			B			D			D			E

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	34
Future Volume (vph)	34
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	41
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	1896	65	82	1245	37	27	33	12	180	111	4
Future Volume (veh/h)	68	1896	65	82	1245	37	27	33	12	180	111	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	2061	71	89	1353	40	29	36	13	196	121	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	3254	966	134	3254	955	173	206	68	292	151	5
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	387	5106	1516	189	5106	1498	502	784	257	929	574	19
Grp Volume(v), veh/h	74	2061	71	89	1353	40	78	0	0	321	0	0
Grp Sat Flow(s),veh/h/ln	387	1702	1516	189	1702	1498	1543	0	0	1522	0	0
Q Serve(g_s), s	14.0	29.5	2.1	47.0	15.7	1.2	0.0	0.0	0.0	19.3	0.0	0.0
Cycle Q Clear(g_c), s	29.7	29.5	2.1	76.5	15.7	1.2	4.1	0.0	0.0	23.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.37		0.17	0.61		0.01
Lane Grp Cap(c), veh/h	256	3254	966	134	3254	955	447	0	0	448	0	0
V/C Ratio(X)	0.29	0.63	0.07	0.66	0.42	0.04	0.17	0.00	0.00	0.72	0.00	0.00
Avail Cap(c_a), veh/h	256	3254	966	134	3254	955	650	0	0	647	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.78	0.78	0.78	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.1	13.2	8.3	40.4	10.7	8.1	34.1	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	2.8	1.0	0.1	18.4	0.3	0.1	0.2	0.0	0.0	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	10.4	0.7	3.4	5.5	0.4	1.8	0.0	0.0	9.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.9	14.2	8.4	58.9	11.0	8.2	34.3	0.0	0.0	43.2	0.0	0.0
LnGrp LOS	C	B	A	E	B	A	C	A	A	D	A	A
Approach Vol, veh/h		2206			1482			78			321	
Approach Delay, s/veh		14.2			13.8			34.3			43.2	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.0		38.0		82.0		38.0				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		78.5		25.4		31.7		6.1				
Green Ext Time (p_c), s		0.0		2.0		25.4		0.5				

Intersection Summary		
HCM 6th Ctrl Delay	16.7	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	299	1533	111	140	856	11	67	856	47	124	950	370
Future Volume (veh/h)	299	1533	111	140	856	11	67	856	47	124	950	370
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	344	1762	128	156	951	0	76	973	53	131	1000	389
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	416	1413	428	279	1692		228	1644	89	299	1209	470
Arrive On Green	0.03	0.09	0.09	0.12	0.33	0.00	0.08	0.33	0.33	0.08	0.34	0.34
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4948	269	1781	3580	1392
Grp Volume(v), veh/h	344	1762	128	156	951	0	76	669	357	131	951	438
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1813	1781	1702	1569
Q Serve(g_s), s	9.7	33.2	7.3	5.7	18.4	0.0	3.2	19.6	19.7	5.6	30.8	30.8
Cycle Q Clear(g_c), s	9.7	33.2	7.3	5.7	18.4	0.0	3.2	19.6	19.7	5.6	30.8	30.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.89
Lane Grp Cap(c), veh/h	416	1413	428	279	1692		228	1131	602	299	1150	530
V/C Ratio(X)	0.83	1.25	0.30	0.56	0.56		0.33	0.59	0.59	0.44	0.83	0.83
Avail Cap(c_a), veh/h	416	1413	428	279	1692		240	1257	669	301	1257	579
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	54.5	26.6	47.5	33.0	0.0	26.6	33.3	33.3	24.3	36.5	36.5
Incr Delay (d2), s/veh	9.2	115.5	1.2	2.5	1.4	0.0	0.8	1.1	2.1	1.0	4.4	9.0
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	4.9	30.2	2.9	4.4	7.6	0.0	1.4	8.0	8.8	2.4	13.0	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	170.0	27.8	50.0	34.3	0.0	27.5	34.4	35.5	25.3	40.9	45.5
LnGrp LOS	D	F	C	D	C		C	C	D	C	D	D
Approach Vol, veh/h		2234			1107			1102			1520	
Approach Delay, s/veh		143.4			36.5			34.3			40.9	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	46.6	20.6	39.0	13.2	47.2	14.0	45.6
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.7	21.7	7.7	35.2	5.2	32.8	11.7	20.4
Green Ext Time (p_c), s	0.1	11.8	0.1	0.0	0.1	6.7	0.0	8.0

Intersection Summary	
HCM 6th Ctrl Delay	77.2
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	32	36	902	956	44
Future Volume (veh/h)	14	32	36	902	956	44
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	35	39	980	1912	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	118	105	277	2862	2497	1054
Arrive On Green	0.07	0.07	0.06	0.81	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	3647	3705	1524
Grp Volume(v), veh/h	15	35	39	980	1912	88
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1524
Q Serve(g_s), s	0.6	1.7	0.4	6.1	28.4	1.5
Cycle Q Clear(g_c), s	0.6	1.7	0.4	6.1	28.4	1.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	118	105	277	2862	2497	1054
V/C Ratio(X)	0.13	0.33	0.14	0.34	0.77	0.08
Avail Cap(c_a), veh/h	627	558	532	2862	2633	1112
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	36.0	36.5	8.9	2.1	8.3	4.1
Incr Delay (d2), s/veh	0.2	0.7	0.1	0.2	1.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	1.0	8.5	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.1	37.2	9.0	2.3	9.9	4.2
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	50			1019	2000	
Approach Delay, s/veh	36.9			2.5	9.6	
Approach LOS	D			A	A	

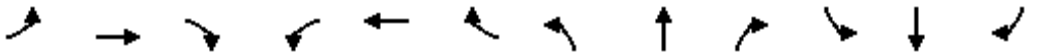
Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	71.2		10.6	9.3	61.9
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	8.1		3.7	2.4	30.4
Green Ext Time (p_c), s	17.9		0.1	0.0	26.2

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	311	557	50	81	279	215	53	295	109	181	335	99
Future Volume (vph)	311	557	50	81	279	215	53	295	109	181	335	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.96	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1649	1801	1397	1711	1683		1711	1801	1531	1711	1801	1412
Flt Permitted	0.33	1.00	1.00	0.28	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	580	1801	1397	510	1683		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	338	605	54	88	303	234	58	321	118	197	364	108
RTOR Reduction (vph)	0	0	25	0	22	0	0	0	50	0	0	0
Lane Group Flow (vph)	338	605	29	88	515	0	58	321	68	197	364	108
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	64.4	64.4	64.4	64.4	64.4		8.4	25.7	25.7	14.6	31.9	31.9
Effective Green, g (s)	64.4	64.4	64.4	64.4	64.4		8.4	25.7	25.7	14.6	31.9	31.9
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.07	0.21	0.21	0.12	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	311	966	749	273	903		119	385	327	208	478	375
v/s Ratio Prot		0.34			0.31		0.03	0.18		c0.12	c0.20	
v/s Ratio Perm	c0.58		0.02	0.17					0.04			0.08
v/c Ratio	1.09	0.63	0.04	0.32	0.57		0.49	0.83	0.21	0.95	0.76	0.29
Uniform Delay, d1	27.8	19.4	13.2	15.6	18.6		53.7	45.1	38.8	52.3	40.5	35.0
Progression Factor	1.00	1.00	1.00	1.65	1.72		1.00	1.00	1.00	0.82	1.16	1.16
Incremental Delay, d2	76.2	3.1	0.1	3.0	2.5		1.1	13.7	0.1	9.0	0.6	0.0
Delay (s)	104.0	22.5	13.3	28.7	34.4		54.9	58.9	38.9	51.8	47.6	40.6
Level of Service	F	C	B	C	C		D	E	D	D	D	D
Approach Delay (s)		49.6			33.6			53.6			47.7	
Approach LOS		D			C			D			D	

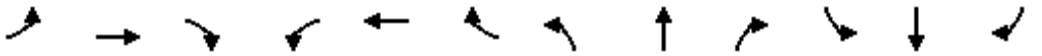
Intersection Summary			
HCM 2000 Control Delay	46.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	780	81	90	470	72	100
Future Volume (vph)	780	81	90	470	72	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.25	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	442	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	848	88	98	511	78	109
RTOR Reduction (vph)	0	6	0	0	0	92
Lane Group Flow (vph)	848	82	98	511	78	17
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.2	88.2	101.5	101.5	9.2	18.5
Effective Green, g (s)	88.2	88.2	101.5	101.5	9.2	18.5
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1323	1125	472	1523	131	287
v/s Ratio Prot	c0.47		0.02	c0.28		0.00
v/s Ratio Perm		0.05	0.16		c0.05	0.01
v/c Ratio	0.64	0.07	0.21	0.34	0.60	0.06
Uniform Delay, d1	8.0	4.5	5.1	2.0	53.6	43.3
Progression Factor	0.79	1.01	0.43	0.39	1.00	1.00
Incremental Delay, d2	1.9	0.1	0.1	0.4	4.8	0.0
Delay (s)	8.1	4.6	2.3	1.2	58.4	43.3
Level of Service	A	A	A	A	E	D
Approach Delay (s)	7.8			1.4	49.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	495	178	225	371	133	135	612	260	98	744	122
Future Volume (vph)	114	495	178	225	371	133	135	612	260	98	744	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1499	1711	3421	1361
Flt Permitted	0.19	1.00	1.00	0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	345	1801	1280	231	1801	1531	1711	3421	1499	1711	3421	1361
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	538	193	245	403	145	147	665	283	107	809	133
RTOR Reduction (vph)	0	0	143	0	0	0	0	0	67	0	0	71
Lane Group Flow (vph)	124	538	50	245	403	145	147	665	216	107	809	62
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	55.1	31.2	31.2	55.1	31.2	31.2	12.2	31.9	55.8	11.6	31.1	55.0
Effective Green, g (s)	55.1	31.2	31.2	55.1	31.2	31.2	12.2	31.9	55.8	11.6	31.1	55.0
Actuated g/C Ratio	0.46	0.26	0.26	0.46	0.26	0.26	0.10	0.27	0.46	0.10	0.26	0.46
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	430	468	332	400	468	398	173	909	697	165	886	623
v/s Ratio Prot	0.06	c0.30		c0.12	0.22		0.09	c0.19	0.06	0.06	c0.24	0.02
v/s Ratio Perm	0.07		0.04	0.16		0.09			0.08			0.03
v/c Ratio	0.29	1.15	0.15	0.61	0.86	0.36	0.85	0.73	0.31	0.65	0.91	0.10
Uniform Delay, d1	20.8	44.4	34.2	25.2	42.3	36.3	53.0	40.1	20.1	52.2	43.1	18.4
Progression Factor	0.69	0.76	0.98	1.12	0.94	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	86.1	0.8	1.2	12.2	1.6	29.2	3.7	0.1	6.4	14.2	0.0
Delay (s)	14.5	120.0	34.1	29.3	51.9	35.4	82.2	43.9	20.2	58.7	57.4	18.5
Level of Service	B	F	C	C	D	D	F	D	C	E	E	B
Approach Delay (s)		85.3			41.9			42.9			52.6	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	54.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	89.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	844	20	26	645	2	42	0	26	7	0	56
Future Volume (veh/h)	4	844	20	26	645	2	42	0	26	7	0	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	917	22	52	1290	2	46	0	28	8	0	61
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	1281	1086	555	1433	1215	63	0	237	63	0	237
Arrive On Green	1.00	1.00	1.00	0.05	0.77	0.77	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	427	1870	1585	1781	1870	1585	18	0	1585	18	0	1585
Grp Volume(v), veh/h	4	917	22	52	1290	2	46	0	28	8	0	61
Grp Sat Flow(s),veh/h/ln	427	1870	1585	1781	1870	1585	18	0	1585	18	0	1585
Q Serve(g_s), s	0.7	0.0	0.0	0.9	62.3	0.0	0.2	0.0	1.8	0.2	0.0	4.1
Cycle Q Clear(g_c), s	52.0	0.0	0.0	0.9	62.3	0.0	17.9	0.0	1.8	17.9	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	170	1281	1086	555	1433	1215	63	0	237	63	0	237
V/C Ratio(X)	0.02	0.72	0.02	0.09	0.90	0.00	0.73	0.00	0.12	0.13	0.00	0.26
Avail Cap(c_a), veh/h	170	1281	1086	692	1433	1215	256	0	465	261	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.41	0.41	0.41	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.2	0.0	0.0	3.9	10.6	3.3	60.0	0.0	44.2	60.0	0.0	45.1
Incr Delay (d2), s/veh	0.1	1.4	0.0	0.0	9.4	0.0	6.1	0.0	0.1	0.3	0.0	0.2
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	0.1	0.5	0.0	0.3	23.2	0.0	1.5	0.0	0.7	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	1.4	0.0	3.9	19.9	3.3	66.1	0.0	44.3	60.3	0.0	45.3
LnGrp LOS	B	A	A	A	B	A	E	A	D	E	A	D
Approach Vol, veh/h		943			1344			74			69	
Approach Delay, s/veh		1.5			19.3			57.8			47.1	
Approach LOS		A			B			E			D	

Timer - Assigned Phs	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	97.0		23.0	9.8	87.3		23.0					
Change Period (Y+Rc), s	5.3		* 4.8	4.0	5.3		* 4.8					
Max Green Setting (Gmax), s	74.7		* 35	15.0	55.7		* 35					
Max Q Clear Time (g_c+I1), s	64.3		19.9	2.9	54.0		19.9					
Green Ext Time (p_c), s	9.3		0.1	0.0	1.4		0.1					

Intersection Summary		
HCM 6th Ctrl Delay	14.3	
HCM 6th LOS	B	

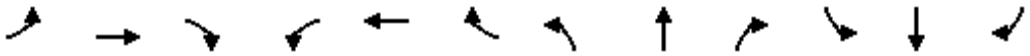
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	842	39	24	661	31	12
Future Volume (vph)	842	39	24	661	31	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	1801	1531	1711	1801	1673	
Flt Permitted	1.00	1.00	0.29	1.00	0.97	
Satd. Flow (perm)	1801	1531	519	1801	1673	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	915	42	26	718	34	13
RTOR Reduction (vph)	0	2	0	0	12	0
Lane Group Flow (vph)	915	40	26	718	35	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	446	1548	104	
v/s Ratio Prot	c0.51			0.40		
v/s Ratio Perm		0.03	0.05		c0.02	
v/c Ratio	0.59	0.03	0.06	0.46	0.33	
Uniform Delay, d1	2.4	1.2	1.2	2.0	53.9	
Progression Factor	0.43	0.23	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.0	0.2	1.0	0.7	
Delay (s)	2.5	0.3	1.5	3.0	54.6	
Level of Service	A	A	A	A	D	
Approach Delay (s)	2.4			2.9	54.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	4.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	970	8	9	422	11	37	1	26	184	10	150
Future Volume (vph)	26	970	8	9	422	11	37	1	26	184	10	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1799	1531		1654			1651	
Flt Permitted		0.98	1.00		0.55	1.00		0.68			0.80	
Satd. Flow (perm)		1764	1531		991	1531		1157			1348	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	1054	9	10	459	12	40	1	28	200	11	163
RTOR Reduction (vph)	0	0	5	0	0	6	0	24	0	0	19	0
Lane Group Flow (vph)	0	1082	4	0	469	6	0	45	0	0	355	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		55.2	55.2		55.2	55.2		9.1			42.2	
Effective Green, g (s)		55.2	55.2		55.2	55.2		9.1			42.2	
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.08			0.35	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		811	704		455	704		87			474	
v/s Ratio Prot												
v/s Ratio Perm		c0.61	0.00		0.47	0.00		c0.04			c0.26	
v/c Ratio		1.33	0.01		1.03	0.01		0.52			0.75	
Uniform Delay, d1		32.4	17.5		32.4	17.6		53.3			34.2	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		158.8	0.0		50.3	0.0		2.1			5.6	
Delay (s)		191.2	17.6		82.7	17.6		55.5			39.8	
Level of Service		F	B		F	B		E			D	
Approach Delay (s)		189.7			81.1			55.5			39.8	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	131.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	103.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	800	50	624	398	19	55	564	962	295	833	51
Future Volume (veh/h)	57	800	50	624	398	19	55	564	962	295	833	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	870	0	678	433	0	60	613	1046	321	905	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	1387		357	1558		212	1182	674	279	1554	94
Arrive On Green	0.27	0.27	0.00	0.10	0.44	0.00	0.33	0.33	0.33	0.08	0.46	0.46
Sat Flow, veh/h	944	5274	0	3456	3647	0	582	3554	1533	3456	3397	206
Grp Volume(v), veh/h	62	870	0	678	433	0	60	613	1046	321	473	487
Grp Sat Flow(s),veh/h/ln	944	1702	0	1728	1777	0	582	1777	1533	1728	1777	1826
Q Serve(g_s), s	6.1	17.9	0.0	12.4	9.4	0.0	10.2	16.7	39.9	9.7	23.6	23.6
Cycle Q Clear(g_c), s	6.1	17.9	0.0	12.4	9.4	0.0	18.8	16.7	39.9	9.7	23.6	23.6
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	317	1387		357	1558		212	1182	674	279	813	835
V/C Ratio(X)	0.20	0.63		1.90	0.28		0.28	0.52	1.55	1.15	0.58	0.58
Avail Cap(c_a), veh/h	357	1604		357	1558		212	1182	674	279	813	835
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	38.4	0.0	53.8	21.6	0.0	36.6	32.3	34.0	55.2	24.1	24.1
Incr Delay (d2), s/veh	1.2	1.9	0.0	414.8	0.1	0.0	3.3	1.6	256.2	100.3	3.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.6	0.0	25.9	3.9	0.0	1.6	7.4	66.7	8.1	10.4	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.3	40.3	0.0	468.6	21.7	0.0	39.9	33.9	290.2	155.5	27.1	27.0
LnGrp LOS	D	D		F	C		D	C	F	F	C	C
Approach Vol, veh/h		932			1111			1719			1281	
Approach Delay, s/veh		40.0			294.4			190.1			59.2	
Approach LOS		D			F			F			E	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	38.9	15.0	46.1		58.9		61.1
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	19.9	11.7	41.9		11.4		25.6
Green Ext Time (p_c), s	0.0	11.4	0.0	0.0		3.1		8.9

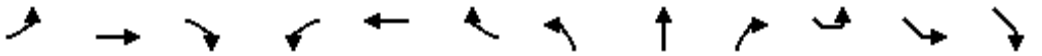
Intersection Summary	
HCM 6th Ctrl Delay	152.1
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

HORIZON YEAR



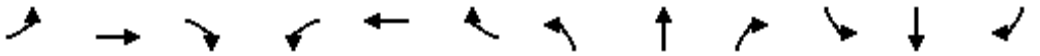
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	366	1412	102	111	1664	218	136	405	88	417	585	390
Future Volume (vph)	366	1412	102	111	1664	218	136	405	88	417	585	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.80	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1158	1711	4916	1404	1711	3421	1219	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1158	1711	4916	1404	1711	3421	1219	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	394	1518	110	117	1752	229	145	431	94	463	650	433
RTOR Reduction (vph)	0	0	69	0	0	105	0	0	64	196	0	0
Lane Group Flow (vph)	394	1518	41	117	1752	124	145	431	30	267	650	433
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.9	45.2	45.2	9.7	39.0	39.0	26.1	26.1	37.8	12.0	12.0	12.0
Effective Green, g (s)	15.9	45.2	45.2	9.7	39.0	39.0	26.1	26.1	37.8	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.38	0.38	0.08	0.32	0.32	0.22	0.22	0.31	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	439	1851	436	138	1597	456	372	744	383	171	171	153
v/s Ratio Prot	0.12	c0.31		0.07	c0.36		0.08	c0.13	0.01	0.16	c0.38	0.28
v/s Ratio Perm			0.04			0.09			0.02			
v/c Ratio	0.90	0.82	0.10	0.85	1.10	0.27	0.39	0.58	0.08	1.56	3.80	2.83
Uniform Delay, d1	51.2	33.7	24.2	54.4	40.5	30.0	40.1	42.0	28.9	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.29	0.63	0.68	1.31	1.30	1.17	1.00	1.00	1.00
Incremental Delay, d2	20.1	4.2	0.4	25.4	51.0	1.0	0.1	0.3	0.0	278.6	1274.7	841.3
Delay (s)	71.3	37.9	24.6	95.5	76.4	21.4	52.5	54.9	33.9	332.6	1328.7	895.3
Level of Service	E	D	C	F	E	C	D	D	C	F	F	F
Approach Delay (s)		43.7			71.5			51.4			697.3	
Approach LOS		D			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	250.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	108.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	477
Future Volume (vph)	477
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	530
RTOR Reduction (vph)	202
Lane Group Flow (vph)	328
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.9
Effective Green, g (s)	27.9
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	346
v/s Ratio Prot	c0.13
v/s Ratio Perm	0.09
v/c Ratio	0.95
Uniform Delay, d1	45.3
Progression Factor	1.00
Incremental Delay, d2	34.4
Delay (s)	79.7
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	1212	474	114	1592	163	243	728	54	89	408	57
Future Volume (vph)	132	1212	474	114	1592	163	243	728	54	89	408	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1450	1711	4916	1333	3385	3490	1501	1711	3350	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	3319	4916	1450	1711	4916	1333	3385	3490	1501	772	3350	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	142	1303	510	120	1676	172	128	383	28	103	474	66
RTOR Reduction (vph)	0	0	195	0	0	75	0	0	21	0	11	0
Lane Group Flow (vph)	142	1303	315	120	1676	97	128	383	7	103	529	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	11.6	46.0	46.0	13.5	47.9	47.9	10.0	28.9	28.9	38.9	28.9	
Effective Green, g (s)	11.6	46.0	46.0	13.5	47.9	47.9	10.0	28.9	28.9	38.9	28.9	
Actuated g/C Ratio	0.10	0.38	0.38	0.11	0.40	0.40	0.08	0.24	0.24	0.32	0.24	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	320	1884	555	192	1962	532	282	840	361	328	806	
v/s Ratio Prot	0.04	c0.27		0.07	c0.34		c0.04	0.11		0.03	c0.16	
v/s Ratio Perm			0.22			0.07			0.00	0.08		
v/c Ratio	0.44	0.69	0.57	0.62	0.85	0.18	0.45	0.46	0.02	0.31	0.66	
Uniform Delay, d1	51.2	31.0	29.2	50.8	32.9	23.4	52.4	38.8	34.7	29.3	41.1	
Progression Factor	0.90	0.84	0.70	1.01	0.89	0.58	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.2	0.4	5.8	4.6	0.7	1.2	0.8	0.0	0.6	2.9	
Delay (s)	46.0	26.2	20.9	57.3	34.0	14.3	53.6	39.7	34.8	29.8	44.0	
Level of Service	D	C	C	E	C	B	D	D	C	C	D	
Approach Delay (s)		26.3			33.7			42.7			41.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	21	1306	17	16	1864	12	4	2	1	4	1
Future Volume (vph)	10	21	1306	17	16	1864	12	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.92
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1706	4916	1443	1704	4916	1383		1727	1481		1586
Flt Permitted		0.08	1.00	1.00	0.16	1.00	1.00		0.79	1.00		0.89
Satd. Flow (perm)		143	4916	1443	296	4916	1383		1413	1481		1440
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	11	23	1451	19	18	2071	13	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	4
Lane Group Flow (vph)	0	34	1451	16	18	2071	11	0	12	0	0	11
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		119	4121	1209	248	4121	1159		103	108		105
v/s Ratio Prot			0.30			c0.42						
v/s Ratio Perm		0.24		0.01	0.06		0.01		c0.01	0.00		0.01
v/c Ratio		0.29	0.35	0.01	0.07	0.50	0.01		0.12	0.00		0.11
Uniform Delay, d1		2.1	2.2	1.6	1.7	2.7	1.6		52.0	51.5		51.9
Progression Factor		2.86	2.96	4.47	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		4.9	0.2	0.0	0.6	0.4	0.0		0.5	0.0		0.5
Delay (s)		10.8	6.8	7.1	2.2	3.2	1.6		52.5	51.5		52.4
Level of Service		B	A	A	A	A	A		D	D		D
Approach Delay (s)			6.9			3.1			52.3			52.4
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

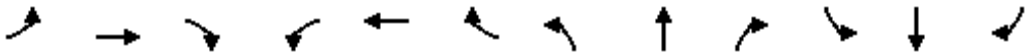
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	7
Future Volume (vph)	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	9
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022



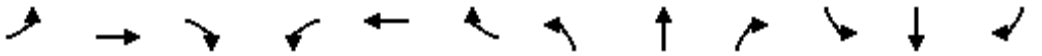
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	1206	19	56	1687	171	123	217	14	106	79	20
Future Volume (veh/h)	72	1206	19	56	1687	171	123	217	14	106	79	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	1311	21	61	1834	186	134	236	15	115	86	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	3119	925	310	3119	914	181	274	17	190	134	30
Arrive On Green	1.00	1.00	1.00	0.61	0.61	0.61	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	211	5106	1514	410	5106	1496	486	949	58	500	463	105
Grp Volume(v), veh/h	78	1311	21	61	1834	186	385	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	211	1702	1514	410	1702	1496	1493	0	0	1069	0	0
Q Serve(g_s), s	40.0	0.0	0.0	8.2	26.2	6.6	6.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	66.2	0.0	0.0	8.2	26.2	6.6	30.1	0.0	0.0	23.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.52		0.10
Lane Grp Cap(c), veh/h	143	3119	925	310	3119	914	472	0	0	355	0	0
V/C Ratio(X)	0.55	0.42	0.02	0.20	0.59	0.20	0.82	0.00	0.00	0.63	0.00	0.00
Avail Cap(c_a), veh/h	143	3119	925	310	3119	914	642	0	0	500	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.09	0.09	0.09	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	10.7	14.2	10.4	41.1	0.0	0.0	38.0	0.0	0.0
Incr Delay (d2), s/veh	14.1	0.4	0.0	0.1	0.1	0.0	5.9	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.1	0.0	0.7	9.2	2.1	11.8	0.0	0.0	6.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.0	0.4	0.0	10.8	14.2	10.4	46.9	0.0	0.0	39.8	0.0	0.0
LnGrp LOS	C	A	A	B	B	B	D	A	A	D	A	A
Approach Vol, veh/h		1410			2081			385			223	
Approach Delay, s/veh		1.8			13.8			46.9			39.8	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.8		41.2		78.8		41.2				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		28.2		25.3		68.2		32.1				
Green Ext Time (p_c), s		26.6		1.4		0.0		2.3				

Intersection Summary		
HCM 6th Ctrl Delay		14.2
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	981	124	167	1349	48	176	1779	61	50	917	292
Future Volume (veh/h)	287	981	124	167	1349	48	176	1779	61	50	917	292
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	330	1128	143	186	1499	0	200	2022	69	53	965	307
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1371	415	266	1571		267	1870	64	183	1351	429
Arrive On Green	0.03	0.09	0.09	0.11	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1545	1781	5106	1585	1781	5066	172	1781	3806	1208
Grp Volume(v), veh/h	330	1128	143	186	1499	0	200	1357	734	53	863	409
Grp Sat Flow(s),veh/h/ln	1728	1702	1545	1781	1702	1585	1781	1702	1834	1781	1702	1610
Q Serve(g_s), s	9.4	26.1	8.1	6.8	34.5	0.0	8.5	44.3	44.3	2.1	26.3	26.4
Cycle Q Clear(g_c), s	9.4	26.1	8.1	6.8	34.5	0.0	8.5	44.3	44.3	2.1	26.3	26.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.75
Lane Grp Cap(c), veh/h	408	1371	415	266	1571		267	1257	677	183	1208	571
V/C Ratio(X)	0.81	0.82	0.34	0.70	0.95		0.75	1.08	1.08	0.29	0.71	0.72
Avail Cap(c_a), veh/h	408	1413	427	266	1571		267	1257	677	208	1257	594
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	51.9	26.8	49.3	40.7	0.0	26.5	37.8	37.9	28.1	33.4	33.5
Incr Delay (d2), s/veh	10.4	5.1	2.0	7.8	14.2	0.0	11.1	49.9	59.5	0.9	1.9	3.9
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	4.8	12.5	3.4	5.8	16.0	0.0	4.3	26.3	30.2	0.9	10.8	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.5	57.0	28.9	57.1	54.9	0.0	37.6	87.8	97.4	28.9	35.3	37.4
LnGrp LOS	D	E	C	E	D		D	F	F	C	D	D
Approach Vol, veh/h		1601			1685			2291			1325	
Approach Delay, s/veh		53.3			55.2			86.5			35.7	
Approach LOS		D			E			F			D	

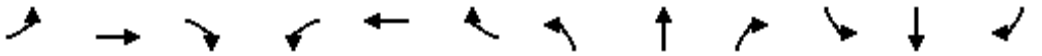
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	51.0	18.7	38.0	14.0	49.3	14.0	42.7
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	4.1	46.3	8.8	28.1	10.5	28.4	11.4	36.5
Green Ext Time (p_c), s	0.0	0.0	0.1	4.2	0.0	7.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	61.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] 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)	16	0	9	1	0	2	23	997	24	24	939	37
Future Volume (veh/h)	16	0	9	1	0	2	23	997	24	24	939	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		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	17	0	10	1	0	2	25	1084	26	26	1878	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	0	0
Cap, veh/h	57	0	0	4	0	0	279	2581	1091	491	2627	1111
Arrive On Green	0.03	0.00	0.00	0.00	0.00	0.00	0.05	0.73	0.73	0.05	0.73	0.73
Sat Flow, veh/h	1781	17		1781	1		1781	3554	1503	1781	3610	1527
Grp Volume(v), veh/h	17	36.8		1	49.8		25	1084	26	26	1878	74
Grp Sat Flow(s),veh/h/ln	1781	D		1781	D		1781	1777	1503	1781	1805	1527
Q Serve(g_s), s	0.7			0.0			0.2	9.1	0.4	0.3	22.3	1.0
Cycle Q Clear(g_c), s	0.7			0.0			0.2	9.1	0.4	0.3	22.3	1.0
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	57			4			279	2581	1091	491	2627	1111
V/C Ratio(X)	0.30			0.26			0.09	0.42	0.02	0.05	0.71	0.07
Avail Cap(c_a), veh/h	679			679			594	2808	1187	803	2852	1206
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	35.8			37.6			5.6	4.1	2.9	2.5	5.8	2.9
Incr Delay (d2), s/veh	1.1			12.2			0.1	0.2	0.0	0.0	1.1	0.1
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3			0.0			0.1	2.1	0.1	0.0	5.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8			49.8			5.7	4.3	2.9	2.5	6.9	3.0
LnGrp LOS	D			D			A	A	A	A	A	A
Approach Vol, veh/h								1135			1978	
Approach Delay, s/veh								4.3			6.7	
Approach LOS								A			A	

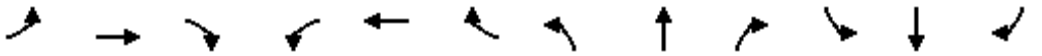
Timer - Assigned Phs	1	2	3		5	6	7					
Phs Duration (G+Y+Rc), s	7.8	60.2	5.4		7.7	60.3	7.6					
Change Period (Y+Rc), s	4.0	5.3	* 5.2		4.0	5.3	* 5.2					
Max Green Setting (Gmax), s	17.0	59.7	* 29		17.0	59.7	* 29					
Max Q Clear Time (g_c+I1), s	2.3	11.1	2.0		2.2	24.3	2.7					
Green Ext Time (p_c), s	0.0	20.7	0.0		0.0	30.7	0.0					

Intersection Summary	
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	340	55	124	535	254	34	323	98	172	296	91
Future Volume (vph)	105	340	55	124	535	254	34	323	98	172	296	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1714		1711	1801	1531	1711	1801	1412
Flt Permitted	0.09	1.00	1.00	0.46	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	171	1801	1397	835	1714		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	370	60	135	582	276	37	351	107	187	322	99
RTOR Reduction (vph)	0	0	28	0	14	0	0	0	49	0	0	0
Lane Group Flow (vph)	114	370	32	135	844	0	37	351	58	187	322	99
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	63.4	63.4	63.4	63.4	63.4		6.0	28.7	28.7	12.6	35.3	35.3
Effective Green, g (s)	63.4	63.4	63.4	63.4	63.4		6.0	28.7	28.7	12.6	35.3	35.3
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53		0.05	0.24	0.24	0.10	0.29	0.29
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	90	951	738	441	905		85	430	366	179	529	415
v/s Ratio Prot		0.21			0.49		0.02	c0.19		c0.11	0.18	
v/s Ratio Perm	c0.67		0.02	0.16					0.04			0.07
v/c Ratio	1.27	0.39	0.04	0.31	0.93		0.44	0.82	0.16	1.04	0.61	0.24
Uniform Delay, d1	28.3	16.8	13.7	15.9	26.3		55.4	43.2	36.1	53.7	36.4	32.1
Progression Factor	1.00	1.00	1.00	0.79	0.88		1.00	1.00	1.00	1.57	0.49	0.45
Incremental Delay, d2	182.5	1.2	0.1	1.5	15.4		1.3	10.8	0.1	33.0	0.1	0.0
Delay (s)	210.8	18.0	13.8	14.1	38.5		56.7	54.0	36.2	117.4	17.9	14.4
Level of Service	F	B	B	B	D		E	D	D	F	B	B
Approach Delay (s)		57.9			35.2			50.3			48.0	
Approach LOS		E			D			D			D	

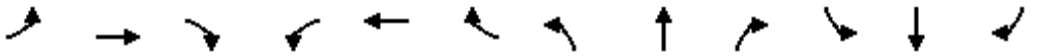
Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	447	148	112	840	71	72
Future Volume (vph)	447	148	112	840	71	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.43	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	778	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	486	161	122	913	77	78
RTOR Reduction (vph)	0	18	0	0	0	66
Lane Group Flow (vph)	486	143	122	913	77	12
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.6	88.6	101.6	101.6	9.1	18.1
Effective Green, g (s)	88.6	88.6	101.6	101.6	9.1	18.1
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1329	1130	728	1524	129	281
v/s Ratio Prot	0.27		0.01	c0.51		0.00
v/s Ratio Perm		0.09	0.13		c0.05	0.00
v/c Ratio	0.37	0.13	0.17	0.60	0.60	0.04
Uniform Delay, d1	5.6	4.5	2.0	2.9	53.7	43.5
Progression Factor	1.90	2.51	0.69	1.41	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.0	0.6	4.9	0.0
Delay (s)	11.4	11.6	1.4	4.7	58.5	43.6
Level of Service	B	B	A	A	E	D
Approach Delay (s)	11.4			4.3	51.0	
Approach LOS	B			A	D	

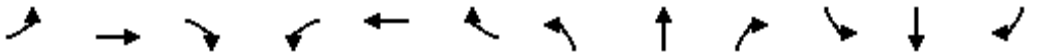
Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	331	120	106	670	123	148	869	76	78	727	127
Future Volume (vph)	70	331	120	106	670	123	148	869	76	78	727	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1280	1711	1801	1531	1711	3421	1483	1711	3421	1301
Flt Permitted	0.09	1.00	1.00	0.38	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	165	1801	1280	683	1801	1531	1711	3421	1483	1711	3421	1301
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	360	130	115	728	134	161	945	83	85	790	138
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	51	0	0	87
Lane Group Flow (vph)	76	360	47	115	728	134	161	945	32	85	790	51
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	53.4	43.6	43.6	53.4	43.6	43.6	14.1	36.1	45.9	9.1	30.9	40.7
Effective Green, g (s)	53.4	43.6	43.6	53.4	43.6	43.6	14.1	36.1	45.9	9.1	30.9	40.7
Actuated g/C Ratio	0.44	0.36	0.36	0.44	0.36	0.36	0.12	0.30	0.38	0.08	0.26	0.34
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	199	654	465	387	654	556	201	1029	567	129	880	441
v/s Ratio Prot	c0.03	0.20		0.02	c0.40		0.09	c0.28	0.00	0.05	c0.23	0.01
v/s Ratio Perm	0.14		0.04	0.11		0.09			0.02			0.03
v/c Ratio	0.38	0.55	0.10	0.30	1.11	0.24	0.80	0.92	0.06	0.66	0.90	0.12
Uniform Delay, d1	26.2	30.4	25.3	20.6	38.2	26.7	51.6	40.5	23.4	53.9	43.0	27.3
Progression Factor	0.82	0.61	1.00	0.87	0.91	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	3.2	0.4	0.0	53.2	0.1	19.0	13.2	0.0	8.9	12.5	0.0
Delay (s)	21.9	21.8	25.7	18.0	87.8	23.6	70.6	53.7	23.4	62.9	55.6	27.3
Level of Service	C	C	C	B	F	C	E	D	C	E	E	C
Approach Delay (s)		22.7			70.8			53.9			52.3	
Approach LOS		C			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	53.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	418	33	21	844	33	45	0	11	0	0	10
Future Volume (veh/h)	64	418	33	21	844	33	45	0	11	0	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	454	36	42	1688	36	49	0	12	0	0	11
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1474	1249	852	1618	1371	131	0	80	0	95	80
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	282	1870	1585	1781	1870	1585	1404	0	1585	0	1870	1585
Grp Volume(v), veh/h	70	454	36	42	1688	36	49	0	12	0	0	11
Grp Sat Flow(s),veh/h/ln	282	1870	1585	1781	1870	1585	1404	0	1585	0	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	103.8	0.4	4.1	0.0	0.9	0.0	0.0	0.8
Cycle Q Clear(g_c), s	94.5	0.0	0.0	0.4	103.8	0.4	4.1	0.0	0.9	0.0	0.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	60	1474	1249	852	1618	1371	131	0	80	0	95	80
V/C Ratio(X)	1.17	0.31	0.03	0.05	1.04	0.03	0.37	0.00	0.15	0.00	0.00	0.14
Avail Cap(c_a), veh/h	60	1474	1249	997	1618	1371	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	47.3	0.0	0.0	1.4	8.1	1.1	56.0	0.0	54.5	0.0	0.0	54.4
Incr Delay (d2), s/veh	161.1	0.5	0.0	0.0	34.5	0.0	0.7	0.0	0.3	0.0	0.0	0.3
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	4.4	0.2	0.0	0.1	32.2	0.1	1.5	0.0	0.4	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	208.3	0.5	0.0	1.4	42.6	1.2	56.7	0.0	54.8	0.0	0.0	54.7
LnGrp LOS	F	A	A	A	F	A	E	A	D	A	A	D
Approach Vol, veh/h		560			1766			61			11	
Approach Delay, s/veh		26.4			40.8			56.3			54.7	
Approach LOS		C			D			E			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		109.1		10.9	9.3	99.8		10.9				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		105.8		6.1	2.4	96.5		2.8				
Green Ext Time (p_c), s		0.0		0.2	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		37.9
HCM 6th LOS		D

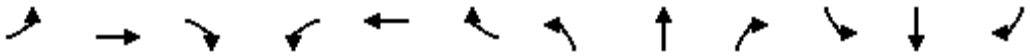
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	425	12	2	839	66	14
Future Volume (vph)	425	12	2	839	66	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1689	
Flt Permitted	1.00	1.00	0.49	1.00	0.96	
Satd. Flow (perm)	1801	1531	886	1801	1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	462	13	2	912	72	15
RTOR Reduction (vph)	0	2	0	0	7	0
Lane Group Flow (vph)	462	11	2	912	80	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	101.6	101.6	101.6	101.6	9.1	
Effective Green, g (s)	101.6	101.6	101.6	101.6	9.1	
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.08	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1524	1296	750	1524	128	
v/s Ratio Prot	0.26			c0.51		
v/s Ratio Perm		0.01	0.00		c0.05	
v/c Ratio	0.30	0.01	0.00	0.60	0.62	
Uniform Delay, d1	1.9	1.4	1.4	2.9	53.8	
Progression Factor	1.51	1.04	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	1.7	6.6	
Delay (s)	3.4	1.5	1.4	4.6	60.4	
Level of Service	A	A	A	A	E	
Approach Delay (s)	3.3			4.6	60.4	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

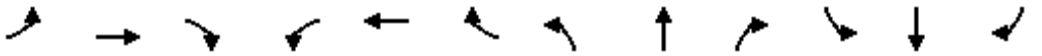
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	431	27	7	991	16	58	1	22	61	24	90
Future Volume (vph)	18	431	27	7	991	16	58	1	22	61	24	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.93	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.98	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1647	
Flt Permitted		0.60	1.00		1.00	1.00		0.45			0.85	
Satd. Flow (perm)		1079	1531		1794	1531		775			1425	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	468	29	8	1077	17	63	1	24	66	26	98
RTOR Reduction (vph)	0	0	11	0	0	6	0	12	0	0	35	0
Lane Group Flow (vph)	0	488	18	0	1085	11	0	76	0	0	155	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		75.5	75.5		75.5	75.5		13.9			17.1	
Effective Green, g (s)		75.5	75.5		75.5	75.5		13.9			17.1	
Actuated g/C Ratio		0.63	0.63		0.63	0.63		0.12			0.14	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		678	963		1128	963		89			203	
v/s Ratio Prot												
v/s Ratio Perm		0.45	0.01		c0.60	0.01		c0.10			c0.11	
v/c Ratio		0.72	0.02		0.96	0.01		0.85			0.76	
Uniform Delay, d1		15.1	8.4		20.9	8.3		52.0			49.5	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		6.5	0.0		19.1	0.0		47.7			14.1	
Delay (s)		21.6	8.4		40.0	8.3		99.8			63.6	
Level of Service		C	A		D	A		F			E	
Approach Delay (s)		20.8			39.5			99.8			63.6	
Approach LOS		C			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	39.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	250	32	1025	812	32	57	954	640	189	587	33
Future Volume (veh/h)	44	250	32	1025	812	32	57	954	640	189	587	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	272	0	1114	883	0	62	1037	696	205	638	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	1121		357	1373		356	1386	764	260	1740	98
Arrive On Green	0.22	0.22	0.00	0.10	0.39	0.00	0.39	0.39	0.39	0.08	0.51	0.51
Sat Flow, veh/h	624	5274	0	3456	3647	0	759	3554	1538	3456	3414	192
Grp Volume(v), veh/h	48	272	0	1114	883	0	62	1037	696	205	332	342
Grp Sat Flow(s),veh/h/ln	624	1702	0	1728	1777	0	759	1777	1538	1728	1777	1830
Q Serve(g_s), s	8.2	5.3	0.0	12.4	24.4	0.0	6.5	30.2	46.8	7.0	13.5	13.5
Cycle Q Clear(g_c), s	12.5	5.3	0.0	12.4	24.4	0.0	6.5	30.2	46.8	7.0	13.5	13.5
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	174	1121		357	1373		356	1386	764	260	905	932
V/C Ratio(X)	0.28	0.24		3.12	0.64		0.17	0.75	0.91	0.79	0.37	0.37
Avail Cap(c_a), veh/h	234	1604		357	1373		356	1386	764	279	905	932
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	38.6	0.0	53.8	30.1	0.0	24.3	31.5	28.1	54.5	17.7	17.8
Incr Delay (d2), s/veh	3.4	0.5	0.0	961.2	1.1	0.0	1.1	3.7	17.0	13.2	1.1	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	1.4	2.2	0.0	53.0	10.4	0.0	1.3	13.3	21.1	3.5	5.7	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.8	39.1	0.0	1015.0	31.1	0.0	25.4	35.2	45.1	67.7	18.9	18.9
LnGrp LOS	D	D		F	C		C	D	D	E	B	B
Approach Vol, veh/h		320			1997			1795			879	
Approach Delay, s/veh		40.2			580.0			38.7			30.3	
Approach LOS		D			F			D			C	

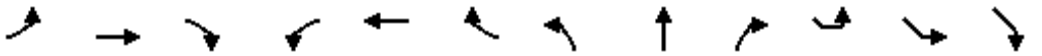
Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	20.0	32.7	14.3	53.0		52.7		67.3				
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2				
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8				
Max Q Clear Time (g_c+I1), s	14.4	14.5	9.0	48.8		26.4		15.5				
Green Ext Time (p_c), s	0.0	4.9	0.0	0.0		4.8		6.3				

Intersection Summary		
HCM 6th Ctrl Delay	253.9	
HCM 6th LOS	F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



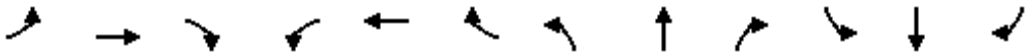
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	215	1483	107	192	1676	147	156	486	283	167	455	271
Future Volume (vph)	215	1483	107	192	1676	147	156	486	283	167	455	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1156	1711	4916	1407	1711	3421	1254	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1156	1711	4916	1407	1711	3421	1254	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	231	1595	115	202	1764	155	166	517	301	186	506	301
RTOR Reduction (vph)	0	0	78	0	0	98	0	0	63	140	0	0
Lane Group Flow (vph)	231	1595	37	202	1764	57	166	517	238	47	506	301
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	9.8	39.0	39.0	14.8	44.0	44.0	27.2	27.2	44.0	12.0	12.0	12.0
Effective Green, g (s)	9.8	39.0	39.0	14.8	44.0	44.0	27.2	27.2	44.0	12.0	12.0	12.0
Actuated g/C Ratio	0.08	0.32	0.32	0.12	0.37	0.37	0.23	0.23	0.37	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	271	1597	375	211	1802	515	387	775	459	171	171	153
v/s Ratio Prot	0.07	0.32		c0.12	c0.36		0.10	c0.15	0.06	0.03	c0.30	0.20
v/s Ratio Perm			0.03			0.04			0.13			
v/c Ratio	0.85	1.00	0.10	0.96	0.98	0.11	0.43	0.67	0.52	0.27	2.96	1.97
Uniform Delay, d1	54.4	40.5	28.3	52.3	37.5	25.1	39.7	42.3	29.7	50.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.33	0.60	0.84	0.93	0.92	0.71	1.00	1.00	1.00
Incremental Delay, d2	21.2	22.2	0.5	43.3	14.7	0.4	0.1	0.8	0.2	1.2	897.2	458.0
Delay (s)	75.6	62.7	28.8	113.0	37.4	21.3	37.0	39.7	21.4	51.1	951.2	512.0
Level of Service	E	E	C	F	D	C	D	D	C	D	F	F
Approach Delay (s)		62.2			43.4			33.6			485.1	
Approach LOS		E			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	141.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	338
Future Volume (vph)	338
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1470
Flt Permitted	1.00
Satd. Flow (perm)	1470
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	376
RTOR Reduction (vph)	196
Lane Group Flow (vph)	180
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	21.8
Effective Green, g (s)	21.8
Actuated g/C Ratio	0.18
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	267
v/s Ratio Prot	0.06
v/s Ratio Perm	0.07
v/c Ratio	0.68
Uniform Delay, d1	45.8
Progression Factor	1.00
Incremental Delay, d2	5.2
Delay (s)	51.0
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	1732	393	161	1401	53	248	439	178	117	490	56
Future Volume (vph)	95	1732	393	161	1401	53	248	439	178	117	490	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1448	1711	4916	1332	3385	3490	1501	1711	3361	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.60	1.00	
Satd. Flow (perm)	3319	4916	1448	1711	4916	1332	3385	3490	1501	1085	3361	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	102	1862	423	169	1475	56	131	231	94	136	570	65
RTOR Reduction (vph)	0	0	148	0	0	35	0	0	70	0	8	0
Lane Group Flow (vph)	102	1862	275	169	1475	21	131	231	24	136	627	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	12.0	38.3	38.3	19.4	45.7	45.7	10.0	30.7	30.7	40.7	30.7	
Effective Green, g (s)	12.0	38.3	38.3	19.4	45.7	45.7	10.0	30.7	30.7	40.7	30.7	
Actuated g/C Ratio	0.10	0.32	0.32	0.16	0.38	0.38	0.08	0.26	0.26	0.34	0.26	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	331	1569	462	276	1872	507	282	892	384	420	859	
v/s Ratio Prot	0.03	c0.38		0.10	c0.30		c0.04	0.07		0.03	c0.19	
v/s Ratio Perm			0.19			0.02			0.02	0.08		
v/c Ratio	0.31	1.19	0.60	0.61	0.79	0.04	0.46	0.26	0.06	0.32	0.73	
Uniform Delay, d1	50.1	40.9	34.3	46.8	32.9	23.4	52.4	35.6	33.8	28.5	40.9	
Progression Factor	0.82	0.78	0.54	1.04	0.80	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	84.7	0.5	3.7	3.2	0.1	1.2	0.3	0.1	0.5	4.2	
Delay (s)	41.0	116.3	19.0	52.5	29.4	23.5	53.7	35.9	33.9	28.9	45.0	
Level of Service	D	F	B	D	C	C	D	D	C	C	D	
Approach Delay (s)		95.9			31.5			40.6			42.2	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	62.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	18	1927	43	126	1464	11	23	1	17	127	6
Future Volume (vph)	7	18	1927	43	126	1464	11	23	1	17	127	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1704	4916	1442	1711	4916	1379		1704	1487		1657
Flt Permitted		0.12	1.00	1.00	0.06	1.00	1.00		0.69	1.00		0.75
Satd. Flow (perm)		217	4916	1442	108	4916	1379		1236	1487		1291
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	8	20	2141	48	140	1627	12	43	2	32	155	7
RTOR Reduction (vph)	0	0	0	8	0	0	3	0	0	12	0	10
Lane Group Flow (vph)	0	28	2141	40	140	1627	9	0	45	20	0	197
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		85.4	85.4	85.4	85.4	85.4	85.4		24.0	24.0		24.0
Effective Green, g (s)		85.4	85.4	85.4	85.4	85.4	85.4		24.0	24.0		24.0
Actuated g/C Ratio		0.71	0.71	0.71	0.71	0.71	0.71		0.20	0.20		0.20
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		154	3498	1026	76	3498	981		247	297		258
v/s Ratio Prot			0.44			0.33						
v/s Ratio Perm		0.13		0.03	c1.29		0.01		0.04	0.01		c0.15
v/c Ratio		0.18	0.61	0.04	1.84	0.47	0.01		0.18	0.07		0.76
Uniform Delay, d1		5.7	8.8	5.1	17.3	7.5	5.0		39.9	38.9		45.3
Progression Factor		1.47	1.85	2.05	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.9	0.3	0.0	425.1	0.4	0.0		0.4	0.1		12.5
Delay (s)		9.4	16.6	10.5	442.4	7.9	5.0		40.2	39.0		57.8
Level of Service		A	B	B	F	A	A		D	D		E
Approach Delay (s)			16.4			42.1			39.7			57.8
Approach LOS			B			D			D			E

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	37
Future Volume (vph)	37
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	45
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022

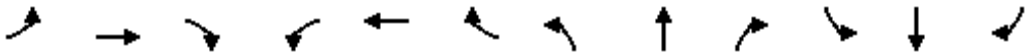
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	1957	70	88	1333	40	29	36	13	193	120	4
Future Volume (veh/h)	73	1957	70	88	1333	40	29	36	13	193	120	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	2127	76	96	1449	43	32	39	14	210	130	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	230	3209	952	124	3209	941	180	210	69	299	155	5
Arrive On Green	0.63	0.63	0.63	0.63	0.63	0.63	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	352	5106	1515	176	5106	1498	509	773	253	922	571	18
Grp Volume(v), veh/h	79	2127	76	96	1449	43	85	0	0	344	0	0
Grp Sat Flow(s),veh/h/ln	352	1702	1515	176	1702	1498	1536	0	0	1511	0	0
Q Serve(g_s), s	18.0	31.8	2.4	43.6	17.7	1.3	0.0	0.0	0.0	21.1	0.0	0.0
Cycle Q Clear(g_c), s	35.6	31.8	2.4	75.4	17.7	1.3	4.5	0.0	0.0	25.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.38		0.16	0.61		0.01
Lane Grp Cap(c), veh/h	230	3209	952	124	3209	941	458	0	0	459	0	0
V/C Ratio(X)	0.34	0.66	0.08	0.77	0.45	0.05	0.19	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	230	3209	952	124	3209	941	647	0	0	644	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.8	14.2	8.7	45.5	11.6	8.5	33.4	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	4.1	1.1	0.2	28.0	0.3	0.1	0.2	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	11.3	0.8	3.8	6.2	0.4	2.0	0.0	0.0	9.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	15.3	8.9	73.5	11.9	8.6	33.6	0.0	0.0	44.1	0.0	0.0
LnGrp LOS	C	B	A	E	B	A	C	A	A	D	A	A
Approach Vol, veh/h		2282			1588			85			344	
Approach Delay, s/veh		15.4			15.5			33.6			44.1	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.9		39.1		80.9		39.1				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		77.4		27.6		37.6		6.5				
Green Ext Time (p_c), s		0.0		2.1		20.9		0.5				

Intersection Summary		
HCM 6th Ctrl Delay	18.1	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	307	1585	117	141	915	12	72	918	51	133	1019	398
Future Volume (veh/h)	307	1585	117	141	915	12	72	918	51	133	1019	398
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	353	1822	134	157	1017	0	82	1043	58	140	1073	419
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1413	428	256	1626		224	1704	95	294	1250	488
Arrive On Green	0.03	0.09	0.09	0.11	0.32	0.00	0.08	0.34	0.34	0.08	0.35	0.35
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4942	274	1781	3576	1396
Grp Volume(v), veh/h	353	1822	134	157	1017	0	82	718	383	140	1021	471
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1812	1781	1702	1569
Q Serve(g_s), s	10.0	33.2	7.6	5.9	20.3	0.0	3.3	21.0	21.1	5.9	33.5	33.5
Cycle Q Clear(g_c), s	10.0	33.2	7.6	5.9	20.3	0.0	3.3	21.0	21.1	5.9	33.5	33.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.89
Lane Grp Cap(c), veh/h	408	1413	428	256	1626		224	1174	625	294	1189	548
V/C Ratio(X)	0.87	1.29	0.31	0.61	0.63		0.37	0.61	0.61	0.48	0.86	0.86
Avail Cap(c_a), veh/h	408	1413	428	256	1626		233	1257	669	295	1257	579
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.62	0.62	0.62	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	54.5	26.6	49.0	34.8	0.0	26.8	32.6	32.7	23.9	36.3	36.3
Incr Delay (d2), s/veh	11.6	133.8	1.2	4.3	1.8	0.0	1.0	1.3	2.4	1.2	5.9	11.9
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	5.1	32.6	3.1	4.6	8.5	0.0	1.4	8.6	9.4	2.5	14.4	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	188.3	27.8	53.3	36.6	0.0	27.8	33.9	35.1	25.1	42.2	48.2
LnGrp LOS	D	F	C	D	D		C	C	D	C	D	D
Approach Vol, veh/h		2309			1174			1183			1632	
Approach Delay, s/veh		158.2			38.8			33.9			42.5	
Approach LOS		F			D			C			D	

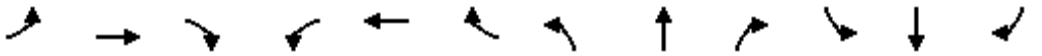
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	48.1	19.0	39.0	13.3	48.6	14.0	44.0
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.9	23.1	7.9	35.2	5.3	35.5	12.0	22.3
Green Ext Time (p_c), s	0.1	12.1	0.1	0.0	0.1	5.9	0.0	7.6

Intersection Summary	
HCM 6th Ctrl Delay	82.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] 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)	16	0	34	4	0	19	39	830	1	0	1026	48
Future Volume (veh/h)	16	0	34	4	0	19	39	830	1	0	1026	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.95	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	17	0	37	4	0	21	42	902	1	0	2052	96
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	0	0
Cap, veh/h	56	0	0	15	0	0	276	2976	1264	536	2597	1098
Arrive On Green	0.03	0.00	0.00	0.01	0.00	0.00	0.07	0.84	0.84	0.00	0.72	0.72
Sat Flow, veh/h	1781	17		1781	4		1781	3554	1509	1781	3610	1526
Grp Volume(v), veh/h	17	39.1		4	42.9		42	902	1	0	2052	96
Grp Sat Flow(s),veh/h/ln	1781	D		1781	D		1781	1777	1509	1781	1805	1526
Q Serve(g_s), s	0.7			0.2			0.4	4.4	0.0	0.0	29.6	1.5
Cycle Q Clear(g_c), s	0.7			0.2			0.4	4.4	0.0	0.0	29.6	1.5
Prop In Lane	1.00			1.00			1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56			15			276	2976	1264	536	2597	1098
V/C Ratio(X)	0.30			0.26			0.15	0.30	0.00	0.00	0.79	0.09
Avail Cap(c_a), veh/h	640			640			533	2976	1264	912	2690	1137
HCM Platoon Ratio	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	0.00	1.00	1.00
Uniform Delay (d), s/veh	37.9			39.5			9.5	1.4	1.1	0.0	7.3	3.4
Incr Delay (d2), s/veh	1.1			3.4			0.1	0.1	0.0	0.0	1.9	0.1
Initial Q Delay(d3),s/veh	0.0			0.0			0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3			0.1			0.3	0.4	0.0	0.0	8.1	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.1			42.9			9.6	1.5	1.1	0.0	9.2	3.4
LnGrp LOS	D			D			A	A	A	A	A	A
Approach Vol, veh/h								945			2148	
Approach Delay, s/veh								1.9			9.0	
Approach LOS								A			A	

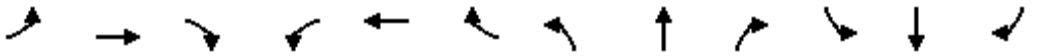
Timer - Assigned Phs	1	2	3	5	6	7
Phs Duration (G+Y+Rc), s	0.0	72.4	5.9	9.5	62.9	7.7
Change Period (Y+Rc), s	4.0	5.3	* 5.2	4.0	5.3	* 5.2
Max Green Setting (Gmax), s	17.0	59.7	* 29	17.0	59.7	* 29
Max Q Clear Time (g_c+I1), s	0.0	6.4	2.2	2.4	31.6	2.7
Green Ext Time (p_c), s	0.0	16.1	0.0	0.0	26.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	7.0
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	594	53	85	297	226	54	310	114	186	358	104
Future Volume (vph)	330	594	53	85	297	226	54	310	114	186	358	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1657	1801	1397	1711	1684		1711	1801	1531	1711	1801	1412
Flt Permitted	0.30	1.00	1.00	0.25	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	532	1801	1397	446	1684		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	646	58	92	323	246	59	337	124	202	389	113
RTOR Reduction (vph)	0	0	27	0	22	0	0	0	50	0	0	0
Lane Group Flow (vph)	359	646	31	92	547	0	59	337	74	202	389	113
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	63.5	63.5	63.5	63.5	63.5		8.4	26.6	26.6	14.6	32.8	32.8
Effective Green, g (s)	63.5	63.5	63.5	63.5	63.5		8.4	26.6	26.6	14.6	32.8	32.8
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53		0.07	0.22	0.22	0.12	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	281	953	739	236	891		119	399	339	208	492	385
v/s Ratio Prot		0.36			0.33		0.03	0.19		c0.12	c0.22	
v/s Ratio Perm	c0.68		0.02	0.21					0.05			0.08
v/c Ratio	1.28	0.68	0.04	0.39	0.61		0.50	0.84	0.22	0.97	0.79	0.29
Uniform Delay, d1	28.2	20.7	13.6	16.8	19.7		53.8	44.7	38.2	52.5	40.4	34.4
Progression Factor	1.00	1.00	1.00	1.27	1.20		1.00	1.00	1.00	0.82	1.16	1.16
Incremental Delay, d2	149.5	3.9	0.1	4.6	3.1		1.2	14.5	0.1	12.6	0.8	0.0
Delay (s)	177.8	24.6	13.7	25.9	26.7		54.9	59.2	38.3	55.4	47.8	40.1
Level of Service	F	C	B	C	C		D	E	D	E	D	D
Approach Delay (s)		75.7			26.6			53.7			48.8	
Approach LOS		E			C			D			D	

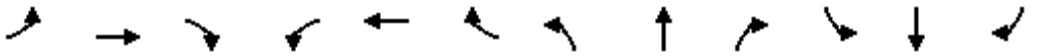
Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	820	87	97	498	78	108
Future Volume (vph)	820	87	97	498	78	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.22	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	403	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	891	95	105	541	85	117
RTOR Reduction (vph)	0	6	0	0	0	85
Lane Group Flow (vph)	891	89	105	541	85	32
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	87.8	87.8	101.2	101.2	9.5	18.9
Effective Green, g (s)	87.8	87.8	101.2	101.2	9.5	18.9
Actuated g/C Ratio	0.73	0.73	0.84	0.84	0.08	0.16
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1317	1120	442	1518	135	292
v/s Ratio Prot	c0.49		0.02	c0.30		0.01
v/s Ratio Perm		0.06	0.18		c0.05	0.01
v/c Ratio	0.68	0.08	0.24	0.36	0.63	0.11
Uniform Delay, d1	8.6	4.6	6.2	2.1	53.5	43.3
Progression Factor	0.75	1.07	0.37	0.26	1.00	1.00
Incremental Delay, d2	2.1	0.1	0.1	0.5	6.5	0.1
Delay (s)	8.5	5.0	2.4	1.0	60.0	43.4
Level of Service	A	A	A	A	E	D
Approach Delay (s)	8.2			1.2	50.4	
Approach LOS	A			A	D	

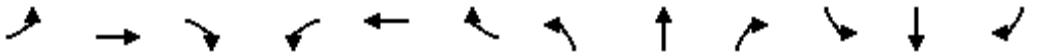
Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	525	191	163	393	134	145	634	280	105	798	130
Future Volume (vph)	110	525	191	163	393	134	145	634	280	105	798	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.87
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1490	1711	3421	1325
Flt Permitted	0.27	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	480	1801	1280	181	1801	1531	1711	3421	1490	1711	3421	1325
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	571	208	177	427	146	158	689	304	114	867	141
RTOR Reduction (vph)	0	0	139	0	0	0	0	0	79	0	0	81
Lane Group Flow (vph)	120	571	69	177	427	146	158	689	225	114	867	60
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	54.6	39.8	39.8	54.6	39.8	39.8	12.4	32.2	47.0	11.8	31.4	46.2
Effective Green, g (s)	54.6	39.8	39.8	54.6	39.8	39.8	12.4	32.2	47.0	11.8	31.4	46.2
Actuated g/C Ratio	0.46	0.33	0.33	0.46	0.33	0.33	0.10	0.27	0.39	0.10	0.26	0.39
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	370	597	424	271	597	507	176	917	583	168	895	510
v/s Ratio Prot	0.04	c0.32		c0.08	0.24		c0.09	0.20	0.05	0.07	c0.25	0.01
v/s Ratio Perm	0.11		0.05	0.22		0.10			0.10			0.03
v/c Ratio	0.32	0.96	0.16	0.65	0.72	0.29	0.90	0.75	0.39	0.68	0.97	0.12
Uniform Delay, d1	20.9	39.3	28.3	25.1	35.1	29.6	53.2	40.2	26.2	52.3	43.8	23.8
Progression Factor	0.73	0.72	0.71	1.16	0.92	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	23.6	0.6	2.9	5.0	1.0	39.0	4.2	0.2	8.3	22.8	0.0
Delay (s)	15.4	52.0	20.7	32.0	37.3	28.0	92.2	44.4	26.3	60.5	66.6	23.8
Level of Service	B	D	C	C	D	C	F	D	C	E	E	C
Approach Delay (s)		39.9			34.3			46.2			60.6	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	46.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	901	21	28	601	2	45	0	27	8	0	60
Future Volume (veh/h)	4	901	21	28	601	2	45	0	27	8	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	979	23	56	1202	2	49	0	29	9	0	65
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	1253	1062	526	1407	1193	63	0	259	63	0	259
Arrive On Green	1.00	1.00	1.00	0.05	0.75	0.75	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	464	1870	1585	1781	1870	1585	19	0	1585	20	0	1585
Grp Volume(v), veh/h	4	979	23	56	1202	2	49	0	29	9	0	65
Grp Sat Flow(s),veh/h/ln	464	1870	1585	1781	1870	1585	19	0	1585	20	0	1585
Q Serve(g_s), s	0.5	0.0	0.0	1.0	53.4	0.0	0.3	0.0	1.9	0.3	0.0	4.3
Cycle Q Clear(g_c), s	42.8	0.0	0.0	1.0	53.4	0.0	19.6	0.0	1.9	19.6	0.0	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	208	1253	1062	526	1407	1193	63	0	259	63	0	259
V/C Ratio(X)	0.02	0.78	0.02	0.11	0.85	0.00	0.78	0.00	0.11	0.14	0.00	0.25
Avail Cap(c_a), veh/h	208	1253	1062	661	1407	1193	237	0	465	243	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.55	0.55	0.55	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.2	0.0	0.0	4.3	10.3	3.7	60.0	0.0	42.8	59.9	0.0	43.8
Incr Delay (d2), s/veh	0.1	2.8	0.0	0.0	6.8	0.0	7.4	0.0	0.1	0.4	0.0	0.2
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	0.1	1.0	0.0	0.3	20.0	0.0	1.6	0.0	0.7	0.3	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.3	2.8	0.0	4.4	17.1	3.7	67.4	0.0	42.8	60.3	0.0	44.0
LnGrp LOS	B	A	A	A	B	A	E	A	D	E	A	D
Approach Vol, veh/h		1006			1260			78			74	
Approach Delay, s/veh		2.7			16.5			58.2			46.0	
Approach LOS		A			B			E			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		95.3		24.7	9.9	85.4		24.7				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		55.4		21.6	3.0	44.8		21.6				
Green Ext Time (p_c), s		15.5		0.1	0.0	8.0		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			13.0									
HCM 6th LOS			B									

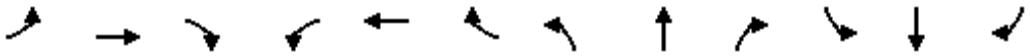
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	899	42	25	604	34	13
Future Volume (vph)	899	42	25	604	34	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1673	
Flt Permitted	1.00	1.00	0.26	1.00	0.96	
Satd. Flow (perm)	1801	1531	476	1801	1673	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	977	46	27	657	37	14
RTOR Reduction (vph)	0	2	0	0	13	0
Lane Group Flow (vph)	977	44	27	657	38	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	409	1548	104	
v/s Ratio Prot	c0.54			0.36		
v/s Ratio Perm		0.03	0.06		c0.02	
v/c Ratio	0.63	0.03	0.07	0.42	0.36	
Uniform Delay, d1	2.6	1.2	1.2	1.9	54.0	
Progression Factor	0.52	0.26	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.0	0.3	0.9	0.8	
Delay (s)	3.0	0.4	1.6	2.7	54.8	
Level of Service	A	A	A	A	D	
Approach Delay (s)	2.9			2.7	54.8	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

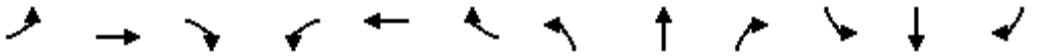
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	989	9	10	438	12	40	1	28	198	11	151
Future Volume (vph)	28	989	9	10	438	12	40	1	28	198	11	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1799	1531		1654			1653	
Flt Permitted		0.96	1.00		0.53	1.00		0.69			0.79	
Satd. Flow (perm)		1726	1531		958	1531		1174			1339	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	1075	10	11	476	13	43	1	30	215	12	164
RTOR Reduction (vph)	0	0	5	0	0	7	0	24	0	0	18	0
Lane Group Flow (vph)	0	1105	5	0	487	6	0	50	0	0	373	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		54.7	54.7		54.7	54.7		9.3			42.5	
Effective Green, g (s)		54.7	54.7		54.7	54.7		9.3			42.5	
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.08			0.35	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		786	697		436	697		90			474	
v/s Ratio Prot												
v/s Ratio Perm		c0.64	0.00		0.51	0.00		c0.04			c0.28	
v/c Ratio		1.41	0.01		1.12	0.01		0.56			0.79	
Uniform Delay, d1		32.6	17.8		32.6	17.8		53.4			34.7	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		190.2	0.0		78.9	0.0		4.2			7.8	
Delay (s)		222.9	17.8		111.6	17.9		57.5			42.5	
Level of Service		F	B		F	B		E			D	
Approach Delay (s)		221.1			109.1			57.5			42.5	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	154.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	107.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	815	52	655	418	20	56	607	1015	318	897	54
Future Volume (veh/h)	61	815	52	655	418	20	56	607	1015	318	897	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	886	0	712	454	0	61	660	1103	346	975	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	313	1396		357	1564		189	1176	671	279	1549	94
Arrive On Green	0.27	0.27	0.00	0.10	0.44	0.00	0.33	0.33	0.33	0.08	0.46	0.46
Sat Flow, veh/h	927	5274	0	3456	3647	0	544	3554	1533	3456	3398	206
Grp Volume(v), veh/h	66	886	0	712	454	0	61	660	1103	346	510	524
Grp Sat Flow(s),veh/h/ln	927	1702	0	1728	1777	0	544	1777	1533	1728	1777	1826
Q Serve(g_s), s	6.7	18.3	0.0	12.4	9.8	0.0	11.6	18.3	39.7	9.7	26.3	26.3
Cycle Q Clear(g_c), s	6.7	18.3	0.0	12.4	9.8	0.0	22.9	18.3	39.7	9.7	26.3	26.3
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	313	1396		357	1564		189	1176	671	279	810	833
V/C Ratio(X)	0.21	0.63		1.99	0.29		0.32	0.56	1.64	1.24	0.63	0.63
Avail Cap(c_a), veh/h	351	1604		357	1564		189	1176	671	279	810	833
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	38.3	0.0	53.8	21.6	0.0	39.4	33.0	34.1	55.2	24.9	24.9
Incr Delay (d2), s/veh	1.3	2.0	0.0	457.1	0.1	0.0	4.5	1.9	296.5	134.2	3.7	3.6
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	1.6	7.8	0.0	28.0	4.1	0.0	1.8	8.1	74.0	9.4	11.6	11.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	40.3	0.0	510.9	21.7	0.0	43.9	34.9	330.6	189.3	28.6	28.5
LnGrp LOS	D	D		F	C		D	C	F	F	C	C
Approach Vol, veh/h		952			1166			1824			1380	
Approach Delay, s/veh		40.0			320.4			214.0			68.9	
Approach LOS		D			F			F			E	

Timer - Assigned Phs	1	2	3	4		6		8				
Phs Duration (G+Y+Rc), s	20.0	39.1	15.0	45.9		59.1		60.9				
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2				
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8				
Max Q Clear Time (g_c+I1), s	14.4	20.3	11.7	41.7		11.8		28.3				
Green Ext Time (p_c), s	0.0	11.4	0.0	0.0		3.2		9.2				

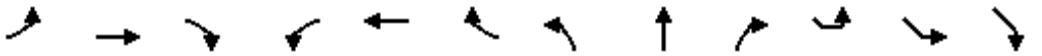
Intersection Summary			
HCM 6th Ctrl Delay		168.6	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

HORIZON YEAR PLUS PROJECT



Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	366	1464	102	111	1673	224	136	405	88	417	612	420
Future Volume (vph)	366	1464	102	111	1673	224	136	405	88	417	612	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.80	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1158	1711	4916	1404	1711	3421	1219	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1158	1711	4916	1404	1711	3421	1219	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	394	1574	110	117	1761	236	145	431	94	463	680	467
RTOR Reduction (vph)	0	0	69	0	0	105	0	0	64	193	0	0
Lane Group Flow (vph)	394	1574	41	117	1761	131	145	431	30	270	680	467
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.9	45.2	45.2	9.7	39.0	39.0	26.1	26.1	37.8	12.0	12.0	12.0
Effective Green, g (s)	15.9	45.2	45.2	9.7	39.0	39.0	26.1	26.1	37.8	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.38	0.38	0.08	0.32	0.32	0.22	0.22	0.31	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	439	1851	436	138	1597	456	372	744	383	171	171	153
v/s Ratio Prot	0.12	c0.32		0.07	c0.36		0.08	c0.13	0.01	0.16	c0.40	0.31
v/s Ratio Perm			0.04			0.09			0.02			
v/c Ratio	0.90	0.85	0.10	0.85	1.10	0.29	0.39	0.58	0.08	1.58	3.98	3.05
Uniform Delay, d1	51.2	34.3	24.2	54.4	40.5	30.2	40.1	42.0	28.9	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.28	0.62	0.67	1.31	1.30	1.17	1.00	1.00	1.00
Incremental Delay, d2	20.1	5.1	0.4	25.0	53.2	1.1	0.1	0.3	0.0	287.6	1353.4	940.7
Delay (s)	71.3	39.4	24.6	94.8	78.4	21.1	52.5	54.9	33.9	341.6	1407.4	994.7
Level of Service	E	D	C	F	E	C	D	D	C	F	F	F
Approach Delay (s)		44.7			72.9			51.4			757.9	
Approach LOS		D			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	271.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	477
Future Volume (vph)	477
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	530
RTOR Reduction (vph)	202
Lane Group Flow (vph)	328
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.9
Effective Green, g (s)	27.9
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	346
v/s Ratio Prot	c0.13
v/s Ratio Perm	0.09
v/c Ratio	0.95
Uniform Delay, d1	45.3
Progression Factor	1.00
Incremental Delay, d2	34.4
Delay (s)	79.7
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	132	1291	474	15	114	1602	169	248	731	114	128	408
Future Volume (vph)	132	1291	474	15	114	1602	169	248	731	114	128	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Lane Util. Factor	0.97	0.91	1.00		1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.95		1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3319	4916	1448		1711	4916	1333	3385	3490	1501	1711	3350
Flt Permitted	0.95	1.00	1.00		0.18	1.00	1.00	0.95	1.00	1.00	0.43	1.00
Satd. Flow (perm)	3319	4916	1448		329	4916	1333	3385	3490	1501	769	3350
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%
Adj. Flow (vph)	142	1388	510	16	120	1686	178	131	385	60	149	474
RTOR Reduction (vph)	0	0	241	0	0	0	75	0	0	46	0	11
Lane Group Flow (vph)	142	1388	269	0	136	1686	103	131	385	14	149	529
Confl. Peds. (#/hr)			24				70			23		
Confl. Bikes (#/hr)			10				31			4		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Prot	NA	Perm		Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6			5	2		3	8		7	4
Permitted Phases			6				2			8	4	
Actuated Green, G (s)	12.0	37.6	37.6		21.9	47.5	47.5	10.0	28.9	28.9	38.9	28.9
Effective Green, g (s)	12.0	37.6	37.6		21.9	47.5	47.5	10.0	28.9	28.9	38.9	28.9
Actuated g/C Ratio	0.10	0.31	0.31		0.18	0.40	0.40	0.08	0.24	0.24	0.32	0.24
Clearance Time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Vehicle Extension (s)	3.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6
Lane Grp Cap (vph)	331	1540	453		60	1945	527	282	840	361	327	806
v/s Ratio Prot	0.04	c0.28				0.34		c0.04	0.11		0.04	c0.16
v/s Ratio Perm			0.19		c0.41		0.08			0.01	0.11	
v/c Ratio	0.43	0.90	0.59		2.27	0.87	0.20	0.46	0.46	0.04	0.46	0.66
Uniform Delay, d1	50.8	39.4	34.8		49.0	33.3	23.7	52.4	38.9	34.9	30.2	41.1
Progression Factor	0.90	0.89	0.84		1.00	0.90	0.56	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.9	0.5		615.9	5.1	0.8	1.2	0.8	0.1	1.0	2.9
Delay (s)	45.8	36.1	29.9		664.9	35.0	14.1	53.7	39.7	35.0	31.2	44.0
Level of Service	D	D	C		F	D	B	D	D	D	C	D
Approach Delay (s)		35.2				76.0			42.4			41.2
Approach LOS		D				E			D			D

Intersection Summary			
HCM 2000 Control Delay	52.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	57
Future Volume (vph)	57
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.86
Growth Factor (vph)	100%
Adj. Flow (vph)	66
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Confl. Bikes (#/hr)	2
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	26	21	1343	17	16	1879	12	4	2	1	4	1
Future Volume (vph)	26	21	1343	17	16	1879	12	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.92
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1707	4916	1443	1705	4916	1383		1727	1481		1586
Flt Permitted		0.08	1.00	1.00	0.16	1.00	1.00		0.79	1.00		0.89
Satd. Flow (perm)		140	4916	1443	282	4916	1383		1413	1481		1440
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	28	23	1492	19	18	2088	13	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	4
Lane Group Flow (vph)	0	51	1492	16	18	2088	11	0	12	0	0	11
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		117	4121	1209	236	4121	1159		103	108		105
v/s Ratio Prot			0.30			c0.42						
v/s Ratio Perm		0.37		0.01	0.06		0.01		c0.01	0.00		0.01
v/c Ratio		0.44	0.36	0.01	0.08	0.51	0.01		0.12	0.00		0.11
Uniform Delay, d1		2.5	2.3	1.6	1.7	2.7	1.6		52.0	51.5		51.9
Progression Factor		2.63	2.64	4.23	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		8.0	0.2	0.0	0.6	0.4	0.0		0.5	0.0		0.5
Delay (s)		14.5	6.1	6.7	2.3	3.2	1.6		52.5	51.5		52.4
Level of Service		B	A	A	A	A	A		D	D		D
Approach Delay (s)			6.4			3.2			52.3			52.4
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	4.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	7
Future Volume (vph)	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	9
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	1217	19	56	1702	171	123	217	14	106	79	20
Future Volume (veh/h)	72	1217	19	56	1702	171	123	217	14	106	79	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	1323	21	61	1850	186	134	236	15	115	86	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	3119	925	307	3119	914	181	274	17	190	134	30
Arrive On Green	1.00	1.00	1.00	0.61	0.61	0.61	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	208	5106	1514	405	5106	1496	486	949	58	500	463	105
Grp Volume(v), veh/h	78	1323	21	61	1850	186	385	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	208	1702	1514	405	1702	1496	1493	0	0	1069	0	0
Q Serve(g_s), s	42.3	0.0	0.0	8.3	26.5	6.6	6.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	68.8	0.0	0.0	8.3	26.5	6.6	30.1	0.0	0.0	23.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.52		0.10
Lane Grp Cap(c), veh/h	141	3119	925	307	3119	914	472	0	0	355	0	0
V/C Ratio(X)	0.55	0.42	0.02	0.20	0.59	0.20	0.82	0.00	0.00	0.63	0.00	0.00
Avail Cap(c_a), veh/h	141	3119	925	307	3119	914	642	0	0	500	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.09	0.09	0.09	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	10.7	14.2	10.4	41.1	0.0	0.0	38.0	0.0	0.0
Incr Delay (d2), s/veh	14.7	0.4	0.0	0.1	0.1	0.0	5.9	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.1	0.0	0.7	9.3	2.1	11.8	0.0	0.0	6.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.2	0.4	0.0	10.8	14.3	10.4	46.9	0.0	0.0	39.8	0.0	0.0
LnGrp LOS	C	A	A	B	B	B	D	A	A	D	A	A
Approach Vol, veh/h		1422			2097			385			223	
Approach Delay, s/veh		1.9			13.9			46.9			39.8	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.8		41.2		78.8		41.2				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		28.5		25.3		70.8		32.1				
Green Ext Time (p_c), s		26.5		1.4		0.0		2.3				

Intersection Summary	
HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	289	989	125	209	1364	48	176	1779	61	50	931	292
Future Volume (veh/h)	289	989	125	209	1364	48	176	1779	61	50	931	292
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	332	1137	144	232	1516	0	200	2022	69	53	980	307
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1374	416	265	1571		265	1870	64	183	1356	424
Arrive On Green	0.03	0.09	0.09	0.11	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1545	1781	5106	1585	1781	5066	172	1781	3822	1195
Grp Volume(v), veh/h	332	1137	144	232	1516	0	200	1357	734	53	873	414
Grp Sat Flow(s),veh/h/ln	1728	1702	1545	1781	1702	1585	1781	1702	1834	1781	1702	1613
Q Serve(g_s), s	9.4	26.3	8.1	10.3	35.1	0.0	8.5	44.3	44.3	2.1	26.7	26.8
Cycle Q Clear(g_c), s	9.4	26.3	8.1	10.3	35.1	0.0	8.5	44.3	44.3	2.1	26.7	26.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.74
Lane Grp Cap(c), veh/h	408	1374	416	265	1571		265	1257	677	183	1208	572
V/C Ratio(X)	0.81	0.83	0.35	0.88	0.97		0.75	1.08	1.08	0.29	0.72	0.72
Avail Cap(c_a), veh/h	408	1413	428	265	1571		265	1257	677	208	1257	595
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	51.9	26.8	50.7	40.9	0.0	26.6	37.8	37.9	28.1	33.6	33.6
Incr Delay (d2), s/veh	10.8	5.2	2.0	26.4	15.8	0.0	11.6	49.9	59.5	0.9	2.0	4.2
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	4.8	12.6	3.4	8.6	16.5	0.0	4.3	26.3	30.2	0.9	11.0	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	57.2	28.9	77.1	56.7	0.0	38.3	87.8	97.4	28.9	35.6	37.8
LnGrp LOS	D	E	C	E	E		D	F	F	C	D	D
Approach Vol, veh/h		1613			1748			2291			1340	
Approach Delay, s/veh		53.6			59.4			86.5			36.0	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	51.0	18.6	38.1	14.0	49.3	14.0	42.7
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	11.4	46.3	12.3	28.3	10.5	28.8	11.4	37.1
Green Ext Time (p_c), s	0.0	0.0	0.0	4.0	0.0	7.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	9	23	1064	939	37
Future Volume (veh/h)	16	9	23	1064	939	37
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	17	10	25	1157	1878	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	81	72	273	2907	2591	1095
Arrive On Green	0.05	0.05	0.05	0.82	0.72	0.72
Sat Flow, veh/h	1781	1585	1781	3647	3705	1526
Grp Volume(v), veh/h	17	10	25	1157	1878	74
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1526
Q Serve(g_s), s	0.7	0.5	0.2	6.8	23.6	1.1
Cycle Q Clear(g_c), s	0.7	0.5	0.2	6.8	23.6	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	81	72	273	2907	2591	1095
V/C Ratio(X)	0.21	0.14	0.09	0.40	0.72	0.07
Avail Cap(c_a), veh/h	666	593	580	2907	2798	1183
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	35.4	35.3	6.5	1.9	6.4	3.2
Incr Delay (d2), s/veh	0.5	0.3	0.1	0.2	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1	0.8	6.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.9	35.6	6.5	2.1	7.6	3.3
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	27			1182	1952	
Approach Delay, s/veh	35.8			2.2	7.4	
Approach LOS	D			A	A	

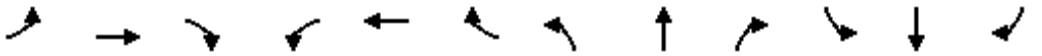
Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	68.3		8.7	7.7	60.6
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	8.8		2.7	2.2	25.6
Green Ext Time (p_c), s	22.7		0.0	0.0	29.7

Intersection Summary	
HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	351	55	124	535	254	34	323	98	202	296	91
Future Volume (vph)	105	351	55	124	535	254	34	323	98	202	296	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1714		1711	1801	1531	1711	1801	1412
Flt Permitted	0.09	1.00	1.00	0.45	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	171	1801	1397	817	1714		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	382	60	135	582	276	37	351	107	220	322	99
RTOR Reduction (vph)	0	0	28	0	14	0	0	0	49	0	0	0
Lane Group Flow (vph)	114	382	32	135	844	0	37	351	58	220	322	99
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	63.4	63.4	63.4	63.4	63.4		6.0	28.7	28.7	12.6	35.3	35.3
Effective Green, g (s)	63.4	63.4	63.4	63.4	63.4		6.0	28.7	28.7	12.6	35.3	35.3
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53		0.05	0.24	0.24	0.10	0.29	0.29
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	90	951	738	431	905		85	430	366	179	529	415
v/s Ratio Prot		0.21			0.49		0.02	c0.19		c0.13	0.18	
v/s Ratio Perm	c0.67		0.02	0.17					0.04			0.07
v/c Ratio	1.27	0.40	0.04	0.31	0.93		0.44	0.82	0.16	1.23	0.61	0.24
Uniform Delay, d1	28.3	16.9	13.7	16.0	26.3		55.4	43.2	36.1	53.7	36.4	32.1
Progression Factor	1.00	1.00	1.00	0.80	0.89		1.00	1.00	1.00	1.59	0.47	0.42
Incremental Delay, d2	182.5	1.3	0.1	1.6	15.4		1.3	10.8	0.1	107.7	0.1	0.0
Delay (s)	210.8	18.2	13.8	14.4	38.7		56.7	54.0	36.2	193.0	17.1	13.7
Level of Service	F	B	B	B	D		E	D	D	F	B	B
Approach Delay (s)		57.2			35.4			50.3			77.0	
Approach LOS		E			D			D			E	

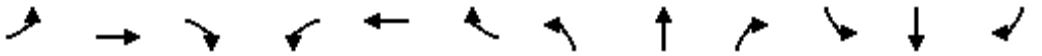
Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	488	148	112	840	71	72
Future Volume (vph)	488	148	112	840	71	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.41	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	734	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	530	161	122	913	77	78
RTOR Reduction (vph)	0	17	0	0	0	66
Lane Group Flow (vph)	530	144	122	913	77	12
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.6	88.6	101.6	101.6	9.1	18.1
Effective Green, g (s)	88.6	88.6	101.6	101.6	9.1	18.1
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1329	1130	694	1524	129	281
v/s Ratio Prot	0.29		0.01	c0.51		0.00
v/s Ratio Perm		0.09	0.14		c0.05	0.00
v/c Ratio	0.40	0.13	0.18	0.60	0.60	0.04
Uniform Delay, d1	5.8	4.5	2.2	2.9	53.7	43.5
Progression Factor	1.82	2.32	0.60	1.40	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.0	0.6	4.9	0.0
Delay (s)	11.3	10.7	1.3	4.6	58.5	43.6
Level of Service	B	B	A	A	E	D
Approach Delay (s)	11.2			4.2	51.0	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	331	120	117	670	169	148	943	76	78	727	127
Future Volume (vph)	111	331	120	117	670	169	148	943	76	78	727	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1280	1711	1801	1531	1711	3421	1484	1711	3421	1304
Flt Permitted	0.09	1.00	1.00	0.37	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	168	1801	1280	675	1801	1531	1711	3421	1484	1711	3421	1304
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	121	360	130	127	728	184	161	1025	83	85	790	138
RTOR Reduction (vph)	0	0	84	0	0	0	0	0	51	0	0	86
Lane Group Flow (vph)	121	360	46	127	728	184	161	1025	32	85	790	52
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	53.3	42.9	42.9	53.3	42.9	42.9	14.2	36.2	46.6	9.1	30.9	41.3
Effective Green, g (s)	53.3	42.9	42.9	53.3	42.9	42.9	14.2	36.2	46.6	9.1	30.9	41.3
Actuated g/C Ratio	0.44	0.36	0.36	0.44	0.36	0.36	0.12	0.30	0.39	0.08	0.26	0.34
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	208	643	457	389	643	547	202	1032	576	129	880	448
v/s Ratio Prot	c0.05	0.20		0.03	c0.40		0.09	c0.30	0.00	0.05	c0.23	0.01
v/s Ratio Perm	0.21		0.04	0.12		0.12			0.02			0.03
v/c Ratio	0.58	0.56	0.10	0.33	1.13	0.34	0.80	0.99	0.06	0.66	0.90	0.12
Uniform Delay, d1	26.7	31.0	25.7	20.9	38.5	28.2	51.5	41.8	22.9	53.9	43.0	26.9
Progression Factor	1.01	0.58	1.00	0.87	0.91	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	3.3	0.4	0.0	61.6	0.2	18.1	26.3	0.0	8.9	12.5	0.0
Delay (s)	29.4	21.3	26.1	18.2	96.7	25.1	69.6	68.1	23.0	62.9	55.6	26.9
Level of Service	C	C	C	B	F	C	E	E	C	E	E	C
Approach Delay (s)		23.9			74.4			65.3			52.3	
Approach LOS		C			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	57.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	418	33	21	901	33	45	0	11	0	0	10
Future Volume (veh/h)	64	418	33	21	901	33	45	0	11	0	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	454	36	42	1802	36	49	0	12	0	0	11
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1474	1249	852	1618	1371	131	0	80	0	95	80
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	252	1870	1585	1781	1870	1585	1404	0	1585	0	1870	1585
Grp Volume(v), veh/h	70	454	36	42	1802	36	49	0	12	0	0	11
Grp Sat Flow(s),veh/h/ln	252	1870	1585	1781	1870	1585	1404	0	1585	0	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	103.8	0.4	4.1	0.0	0.9	0.0	0.0	0.8
Cycle Q Clear(g_c), s	94.5	0.0	0.0	0.4	103.8	0.4	4.1	0.0	0.9	0.0	0.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	60	1474	1249	852	1618	1371	131	0	80	0	95	80
V/C Ratio(X)	1.17	0.31	0.03	0.05	1.11	0.03	0.37	0.00	0.15	0.00	0.00	0.14
Avail Cap(c_a), veh/h	60	1474	1249	997	1618	1371	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	47.3	0.0	0.0	1.4	8.1	1.1	56.0	0.0	54.5	0.0	0.0	54.4
Incr Delay (d2), s/veh	160.4	0.5	0.0	0.0	60.4	0.0	0.7	0.0	0.3	0.0	0.0	0.3
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	4.4	0.2	0.0	0.1	43.8	0.1	1.5	0.0	0.4	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	207.7	0.5	0.0	1.4	68.5	1.2	56.7	0.0	54.8	0.0	0.0	54.7
LnGrp LOS	F	A	A	A	F	A	E	A	D	A	A	D
Approach Vol, veh/h		560			1880			61			11	
Approach Delay, s/veh		26.3			65.7			56.3			54.7	
Approach LOS		C			E			E			D	

Timer - Assigned Phs	2	4	5	6	8
Phs Duration (G+Y+Rc), s	109.1	10.9	9.3	99.8	10.9
Change Period (Y+Rc), s	5.3	* 4.8	4.0	5.3	* 4.8
Max Green Setting (Gmax), s	74.7	* 35	15.0	55.7	* 35
Max Q Clear Time (g_c+I1), s	105.8	6.1	2.4	96.5	2.8
Green Ext Time (p_c), s	0.0	0.2	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	56.6
HCM 6th LOS	E

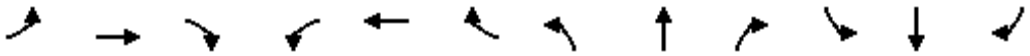
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	425	12	2	964	66	14
Future Volume (vph)	425	12	2	964	66	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1689	
Flt Permitted	1.00	1.00	0.49	1.00	0.96	
Satd. Flow (perm)	1801	1531	886	1801	1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	462	13	2	1048	72	15
RTOR Reduction (vph)	0	2	0	0	7	0
Lane Group Flow (vph)	462	11	2	1048	80	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	101.6	101.6	101.6	101.6	9.1	
Effective Green, g (s)	101.6	101.6	101.6	101.6	9.1	
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.08	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1524	1296	750	1524	128	
v/s Ratio Prot	0.26			c0.58		
v/s Ratio Perm		0.01	0.00		c0.05	
v/c Ratio	0.30	0.01	0.00	0.69	0.62	
Uniform Delay, d1	1.9	1.4	1.4	3.4	53.8	
Progression Factor	0.59	0.15	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	2.6	6.6	
Delay (s)	1.6	0.2	1.4	5.9	60.4	
Level of Service	A	A	A	A	E	
Approach Delay (s)	1.6			5.9	60.4	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	438	27	7	1040	16	58	1	22	61	24	146
Future Volume (vph)	18	438	27	7	1040	16	58	1	22	61	24	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.91	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.99	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1625	
Flt Permitted		0.43	1.00		1.00	1.00		0.37			0.89	
Satd. Flow (perm)		782	1531		1794	1531		644			1459	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	476	29	8	1130	17	63	1	24	66	26	159
RTOR Reduction (vph)	0	0	12	0	0	7	0	12	0	0	56	0
Lane Group Flow (vph)	0	496	17	0	1138	10	0	76	0	0	195	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		69.6	69.6		69.6	69.6		17.3			19.6	
Effective Green, g (s)		69.6	69.6		69.6	69.6		17.3			19.6	
Actuated g/C Ratio		0.58	0.58		0.58	0.58		0.14			0.16	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		453	887		1040	887		92			238	
v/s Ratio Prot												
v/s Ratio Perm		0.63	0.01		c0.63	0.01		c0.12			c0.13	
v/c Ratio		1.09	0.02		1.09	0.01		0.83			0.82	
Uniform Delay, d1		25.2	10.7		25.2	10.7		49.9			48.5	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		70.5	0.0		57.3	0.0		41.2			18.4	
Delay (s)		95.7	10.7		82.5	10.7		91.1			66.9	
Level of Service		F	B		F	B		F			E	
Approach Delay (s)		91.0			81.4			91.1			66.9	
Approach LOS		F			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	82.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	256	32	1025	851	32	57	954	640	189	587	33
Future Volume (veh/h)	44	256	32	1025	851	32	57	954	640	189	587	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	278	0	1114	925	0	62	1037	696	205	638	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	1157		357	1397		351	1361	753	260	1716	97
Arrive On Green	0.23	0.23	0.00	0.10	0.39	0.00	0.38	0.38	0.38	0.08	0.50	0.50
Sat Flow, veh/h	601	5274	0	3456	3647	0	759	3554	1537	3456	3414	192
Grp Volume(v), veh/h	48	278	0	1114	925	0	62	1037	696	205	332	342
Grp Sat Flow(s),veh/h/ln	601	1702	0	1728	1777	0	759	1777	1537	1728	1777	1830
Q Serve(g_s), s	8.5	5.3	0.0	12.4	25.6	0.0	6.6	30.5	46.0	7.0	13.7	13.7
Cycle Q Clear(g_c), s	14.2	5.3	0.0	12.4	25.6	0.0	6.6	30.5	46.0	7.0	13.7	13.7
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	168	1157		357	1397		351	1361	753	260	893	920
V/C Ratio(X)	0.29	0.24		3.12	0.66		0.18	0.76	0.92	0.79	0.37	0.37
Avail Cap(c_a), veh/h	221	1604		357	1397		351	1361	753	279	893	920
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	38.0	0.0	53.8	29.9	0.0	24.9	32.2	28.9	54.5	18.3	18.3
Incr Delay (d2), s/veh	3.7	0.4	0.0	961.2	1.2	0.0	1.1	4.1	18.8	13.2	1.2	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	1.4	2.3	0.0	53.0	10.9	0.0	1.3	13.6	21.7	3.5	5.8	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.6	38.4	0.0	1015.0	31.1	0.0	26.0	36.3	47.7	67.7	19.4	19.4
LnGrp LOS	D	D		F	C		C	D	D	E	B	B
Approach Vol, veh/h		326			2039			1795			879	
Approach Delay, s/veh		39.7			568.6			40.4			30.7	
Approach LOS		D			F			D			C	

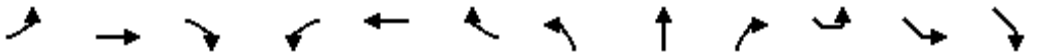
Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	33.5	14.3	52.2		53.5		66.5
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	16.2	9.0	48.0		27.6		15.7
Green Ext Time (p_c), s	0.0	4.8	0.0	0.0		4.6		6.3

Intersection Summary	
HCM 6th Ctrl Delay	252.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	215	1493	107	192	1739	185	156	486	283	167	460	276
Future Volume (vph)	215	1493	107	192	1739	185	156	486	283	167	460	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1156	1711	4916	1407	1711	3421	1254	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1156	1711	4916	1407	1711	3421	1254	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	231	1605	115	202	1831	195	166	517	301	186	511	307
RTOR Reduction (vph)	0	0	78	0	0	98	0	0	63	140	0	0
Lane Group Flow (vph)	231	1605	37	202	1831	97	166	517	238	47	511	307
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	9.8	39.0	39.0	14.8	44.0	44.0	27.2	27.2	44.0	12.0	12.0	12.0
Effective Green, g (s)	9.8	39.0	39.0	14.8	44.0	44.0	27.2	27.2	44.0	12.0	12.0	12.0
Actuated g/C Ratio	0.08	0.32	0.32	0.12	0.37	0.37	0.23	0.23	0.37	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	271	1597	375	211	1802	515	387	775	459	171	171	153
v/s Ratio Prot	0.07	0.33		c0.12	c0.37		0.10	c0.15	0.06	0.03	c0.30	0.20
v/s Ratio Perm			0.03			0.07			0.13			
v/c Ratio	0.85	1.01	0.10	0.96	1.02	0.19	0.43	0.67	0.52	0.27	2.99	2.01
Uniform Delay, d1	54.4	40.5	28.3	52.3	38.0	25.8	39.7	42.3	29.7	50.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.33	0.63	0.74	0.94	0.93	0.64	1.00	1.00	1.00
Incremental Delay, d2	21.2	23.7	0.5	42.4	22.8	0.6	0.1	0.8	0.2	1.2	910.3	475.3
Delay (s)	75.6	64.2	28.8	111.7	46.6	19.7	37.4	39.9	19.2	51.1	964.3	529.3
Level of Service	E	E	C	F	D	B	D	D	B	D	F	F
Approach Delay (s)		63.5			50.2			33.2			495.6	
Approach LOS		E			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	145.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	338
Future Volume (vph)	338
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1470
Flt Permitted	1.00
Satd. Flow (perm)	1470
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	376
RTOR Reduction (vph)	196
Lane Group Flow (vph)	180
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	21.8
Effective Green, g (s)	21.8
Actuated g/C Ratio	0.18
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	267
v/s Ratio Prot	0.06
v/s Ratio Perm	0.07
v/c Ratio	0.68
Uniform Delay, d1	45.8
Progression Factor	1.00
Incremental Delay, d2	5.2
Delay (s)	51.0
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	95	1746	393	3	161	1471	91	279	456	247	124	490
Future Volume (vph)	95	1746	393	3	161	1471	91	279	456	247	124	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Lane Util. Factor	0.97	0.91	1.00		1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.95		1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3319	4916	1448		1711	4916	1332	3385	3490	1501	1711	3361
Flt Permitted	0.95	1.00	1.00		0.20	1.00	1.00	0.95	1.00	1.00	0.59	1.00
Satd. Flow (perm)	3319	4916	1448		358	4916	1332	3385	3490	1501	1066	3361
Peak-hour factor, PHF	0.93	0.93	0.93	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%
Adj. Flow (vph)	102	1877	423	3	169	1548	96	147	240	130	144	570
RTOR Reduction (vph)	0	0	148	0	0	0	59	0	0	97	0	8
Lane Group Flow (vph)	102	1877	275	0	172	1548	37	147	240	33	144	627
Confl. Peds. (#/hr)			24				70			23		
Confl. Bikes (#/hr)			10				31			4		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Prot	NA	Perm		Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA
Protected Phases	1	6			5	2		3	8		7	4
Permitted Phases			6				2			8	4	
Actuated Green, G (s)	12.0	37.6	37.6		20.1	45.7	45.7	10.0	30.7	30.7	40.7	30.7
Effective Green, g (s)	12.0	37.6	37.6		20.1	45.7	45.7	10.0	30.7	30.7	40.7	30.7
Actuated g/C Ratio	0.10	0.31	0.31		0.17	0.38	0.38	0.08	0.26	0.26	0.34	0.26
Clearance Time (s)	5.0	5.4	5.4		5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2
Vehicle Extension (s)	3.0	5.0	5.0		3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6
Lane Grp Cap (vph)	331	1540	453		59	1872	507	282	892	384	415	859
v/s Ratio Prot	0.03	c0.38				0.31		c0.04	0.07		0.03	c0.19
v/s Ratio Perm			0.19		c0.48		0.03			0.02	0.09	
v/c Ratio	0.31	1.22	0.61		2.92	0.83	0.07	0.52	0.27	0.09	0.35	0.73
Uniform Delay, d1	50.1	41.2	34.9		50.0	33.6	23.7	52.7	35.7	34.0	28.6	40.9
Progression Factor	0.82	0.78	0.54		1.00	0.81	0.37	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	99.1	0.6		902.2	4.0	0.3	1.7	0.3	0.2	0.5	4.2
Delay (s)	41.0	131.1	19.5		952.2	31.2	9.1	54.4	36.0	34.2	29.1	45.0
Level of Service	D	F	B		F	C	A	D	D	C	C	D
Approach Delay (s)		107.6				117.2			40.8			42.1
Approach LOS		F				F			D			D

Intersection Summary			
HCM 2000 Control Delay	95.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	56
Future Volume (vph)	56
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.86
Growth Factor (vph)	100%
Adj. Flow (vph)	65
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	8
Confl. Bikes (#/hr)	2
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	115	18	2120	43	126	1467	11	23	1	17	127	6
Future Volume (vph)	115	18	2120	43	126	1467	11	23	1	17	127	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1704	4916	1442	1711	4916	1379		1704	1487		1657
Flt Permitted		0.12	1.00	1.00	0.05	1.00	1.00		0.69	1.00		0.75
Satd. Flow (perm)		216	4916	1442	85	4916	1379		1235	1487		1291
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	125	20	2356	48	140	1630	12	43	2	32	155	7
RTOR Reduction (vph)	0	0	0	8	0	0	3	0	0	12	0	8
Lane Group Flow (vph)	0	145	2356	40	140	1630	9	0	45	20	0	199
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		85.2	85.2	85.2	85.2	85.2	85.2		24.2	24.2		24.2
Effective Green, g (s)		85.2	85.2	85.2	85.2	85.2	85.2		24.2	24.2		24.2
Actuated g/C Ratio		0.71	0.71	0.71	0.71	0.71	0.71		0.20	0.20		0.20
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		153	3490	1023	60	3490	979		249	299		260
v/s Ratio Prot			0.48			0.33						
v/s Ratio Perm		0.67		0.03	c1.66		0.01		0.04	0.01		c0.15
v/c Ratio		0.95	0.68	0.04	2.33	0.47	0.01		0.18	0.07		0.77
Uniform Delay, d1		15.4	9.7	5.2	17.4	7.5	5.1		39.7	38.8		45.2
Progression Factor		1.91	1.75	1.93	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		39.5	0.5	0.0	648.6	0.5	0.0		0.4	0.1		12.6
Delay (s)		68.9	17.5	10.1	666.0	8.0	5.1		40.0	38.9		57.8
Level of Service		E	B	B	F	A	A		D	D		E
Approach Delay (s)			20.3			59.7			39.5			57.8
Approach LOS			C			E			D			E

Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		

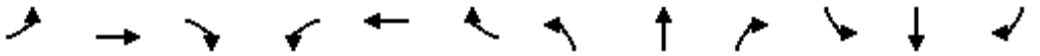
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	37
Future Volume (vph)	37
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	45
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	2030	70	88	1336	40	29	36	13	193	120	4
Future Volume (veh/h)	73	2030	70	88	1336	40	29	36	13	193	120	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	2207	76	96	1452	43	32	39	14	210	130	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	3209	952	116	3209	941	180	210	69	299	155	5
Arrive On Green	0.63	0.63	0.63	0.63	0.63	0.63	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	351	5106	1515	163	5106	1498	509	773	253	922	571	18
Grp Volume(v), veh/h	79	2207	76	96	1452	43	85	0	0	344	0	0
Grp Sat Flow(s),veh/h/ln	351	1702	1515	163	1702	1498	1536	0	0	1511	0	0
Q Serve(g_s), s	18.1	33.9	2.4	41.5	17.7	1.3	0.0	0.0	0.0	21.1	0.0	0.0
Cycle Q Clear(g_c), s	35.8	33.9	2.4	75.4	17.7	1.3	4.5	0.0	0.0	25.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.38		0.16	0.61		0.01
Lane Grp Cap(c), veh/h	229	3209	952	116	3209	941	458	0	0	459	0	0
V/C Ratio(X)	0.34	0.69	0.08	0.83	0.45	0.05	0.19	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	229	3209	952	116	3209	941	647	0	0	644	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.9	14.6	8.7	47.8	11.6	8.5	33.4	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	4.1	1.2	0.2	35.7	0.3	0.1	0.2	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	12.1	0.8	4.0	6.2	0.4	2.0	0.0	0.0	9.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	15.8	8.9	83.5	11.9	8.6	33.6	0.0	0.0	44.1	0.0	0.0
LnGrp LOS	C	B	A	F	B	A	C	A	A	D	A	A
Approach Vol, veh/h		2362			1591			85			344	
Approach Delay, s/veh		15.9			16.1			33.6			44.1	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.9		39.1		80.9		39.1				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		77.4		27.6		37.8		6.5				
Green Ext Time (p_c), s		0.0		2.1		21.1		0.5				

Intersection Summary		
HCM 6th Ctrl Delay	18.5	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	321	1641	120	149	918	12	72	918	51	133	1022	398
Future Volume (veh/h)	321	1641	120	149	918	12	72	918	51	133	1022	398
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	369	1886	138	166	1020	0	82	1043	58	140	1076	419
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1413	428	256	1625		223	1705	95	294	1252	487
Arrive On Green	0.03	0.09	0.09	0.11	0.32	0.00	0.08	0.35	0.35	0.08	0.35	0.35
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4942	274	1781	3580	1394
Grp Volume(v), veh/h	369	1886	138	166	1020	0	82	718	383	140	1023	472
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1812	1781	1702	1569
Q Serve(g_s), s	10.0	33.2	7.8	6.5	20.4	0.0	3.3	21.0	21.1	5.9	33.5	33.5
Cycle Q Clear(g_c), s	10.0	33.2	7.8	6.5	20.4	0.0	3.3	21.0	21.1	5.9	33.5	33.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.89
Lane Grp Cap(c), veh/h	408	1413	428	256	1625		223	1175	625	294	1190	549
V/C Ratio(X)	0.90	1.34	0.32	0.65	0.63		0.37	0.61	0.61	0.48	0.86	0.86
Avail Cap(c_a), veh/h	408	1413	428	256	1625		233	1257	669	295	1257	579
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	0.58	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	54.5	26.7	49.3	34.8	0.0	26.8	32.6	32.6	23.9	36.3	36.3
Incr Delay (d2), s/veh	15.2	153.7	1.2	5.6	1.8	0.0	1.0	1.3	2.4	1.2	6.0	12.0
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	5.6	35.2	3.2	5.0	8.5	0.0	1.4	8.6	9.4	2.5	14.4	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	208.2	27.9	54.9	36.7	0.0	27.8	33.9	35.1	25.1	42.3	48.3
LnGrp LOS	E	F	C	D	D		C	C	D	C	D	D
Approach Vol, veh/h		2393			1186			1183			1635	
Approach Delay, s/veh		174.4			39.2			33.9			42.5	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	48.1	19.0	39.0	13.3	48.7	14.0	44.0
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.9	23.1	8.5	35.2	5.3	35.5	12.0	22.4
Green Ext Time (p_c), s	0.1	12.2	0.1	0.0	0.1	5.8	0.0	7.6

Intersection Summary	
HCM 6th Ctrl Delay	89.7
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

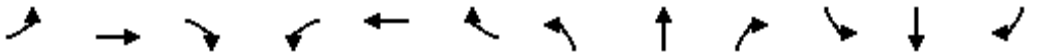
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	34	39	947	1026	48
Future Volume (veh/h)	16	34	39	947	1026	48
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	17	37	42	1029	2052	96
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	121	108	258	2867	2499	1055
Arrive On Green	0.07	0.07	0.07	0.81	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	3647	3705	1524
Grp Volume(v), veh/h	17	37	42	1029	2052	96
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1524
Q Serve(g_s), s	0.8	1.9	0.4	6.6	34.1	1.7
Cycle Q Clear(g_c), s	0.8	1.9	0.4	6.6	34.1	1.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	121	108	258	2867	2499	1055
V/C Ratio(X)	0.14	0.34	0.16	0.36	0.82	0.09
Avail Cap(c_a), veh/h	610	543	499	2867	2564	1083
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	36.8	37.4	12.0	2.2	9.2	4.2
Incr Delay (d2), s/veh	0.2	0.7	0.1	0.2	2.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.4	1.1	10.6	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.0	38.1	12.1	2.4	11.7	4.3
LnGrp LOS	D	D	B	A	B	A
Approach Vol, veh/h	54			1071	2148	
Approach Delay, s/veh	37.7			2.8	11.4	
Approach LOS	D			A	B	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	73.1		10.9	9.6	63.5
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	8.6		3.9	2.4	36.1
Green Ext Time (p_c), s	19.2		0.1	0.0	22.1

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	596	53	85	297	226	54	310	114	191	358	104
Future Volume (vph)	330	596	53	85	297	226	54	310	114	191	358	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1657	1801	1397	1711	1684		1711	1801	1531	1711	1801	1412
Flt Permitted	0.30	1.00	1.00	0.25	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	532	1801	1397	443	1684		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	648	58	92	323	246	59	337	124	208	389	113
RTOR Reduction (vph)	0	0	27	0	22	0	0	0	50	0	0	0
Lane Group Flow (vph)	359	648	31	92	547	0	59	337	74	208	389	113
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	63.5	63.5	63.5	63.5	63.5		8.4	26.6	26.6	14.6	32.8	32.8
Effective Green, g (s)	63.5	63.5	63.5	63.5	63.5		8.4	26.6	26.6	14.6	32.8	32.8
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53		0.07	0.22	0.22	0.12	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	281	953	739	234	891		119	399	339	208	492	385
v/s Ratio Prot		0.36			0.33		0.03	0.19		c0.12	c0.22	
v/s Ratio Perm	c0.68		0.02	0.21					0.05			0.08
v/c Ratio	1.28	0.68	0.04	0.39	0.61		0.50	0.84	0.22	1.00	0.79	0.29
Uniform Delay, d1	28.2	20.8	13.6	16.8	19.7		53.8	44.7	38.2	52.7	40.4	34.4
Progression Factor	1.00	1.00	1.00	1.61	1.66		1.00	1.00	1.00	0.82	1.17	1.17
Incremental Delay, d2	149.5	3.9	0.1	4.7	3.1		1.2	14.5	0.1	18.7	0.8	0.0
Delay (s)	177.8	24.7	13.7	31.8	35.7		54.9	59.2	38.3	61.7	48.0	40.2
Level of Service	F	C	B	C	D		D	E	D	E	D	D
Approach Delay (s)		75.7			35.1			53.7			50.8	
Approach LOS		E			D			D			D	

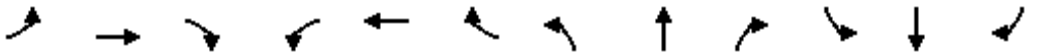
Intersection Summary			
HCM 2000 Control Delay	56.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	827	87	97	498	78	108
Future Volume (vph)	827	87	97	498	78	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.22	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	396	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	899	95	105	541	85	117
RTOR Reduction (vph)	0	6	0	0	0	83
Lane Group Flow (vph)	899	89	105	541	85	34
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	87.8	87.8	101.2	101.2	9.5	18.9
Effective Green, g (s)	87.8	87.8	101.2	101.2	9.5	18.9
Actuated g/C Ratio	0.73	0.73	0.84	0.84	0.08	0.16
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1317	1120	436	1518	135	292
v/s Ratio Prot	c0.50		0.02	c0.30		0.01
v/s Ratio Perm		0.06	0.18		c0.05	0.01
v/c Ratio	0.68	0.08	0.24	0.36	0.63	0.12
Uniform Delay, d1	8.6	4.6	6.4	2.1	53.5	43.4
Progression Factor	0.78	1.12	0.47	0.24	1.00	1.00
Incremental Delay, d2	2.1	0.1	0.1	0.4	6.5	0.1
Delay (s)	8.8	5.2	3.0	0.9	60.0	43.4
Level of Service	A	A	A	A	E	D
Approach Delay (s)	8.5			1.3	50.4	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	525	191	236	393	142	145	647	280	105	798	130
Future Volume (vph)	117	525	191	236	393	142	145	647	280	105	798	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.89
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1498	1711	3421	1358
Flt Permitted	0.15	1.00	1.00	0.13	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	278	1801	1280	231	1801	1531	1711	3421	1498	1711	3421	1358
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	571	208	257	427	154	158	703	304	114	867	141
RTOR Reduction (vph)	0	0	154	0	0	0	0	0	69	0	0	71
Lane Group Flow (vph)	127	571	54	257	427	154	158	703	235	114	867	70
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	54.6	31.2	31.2	54.6	31.2	31.2	12.4	32.2	55.6	11.8	31.4	54.8
Effective Green, g (s)	54.6	31.2	31.2	54.6	31.2	31.2	12.4	32.2	55.6	11.8	31.4	54.8
Actuated g/C Ratio	0.46	0.26	0.26	0.46	0.26	0.26	0.10	0.27	0.46	0.10	0.26	0.46
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	405	468	332	393	468	398	176	917	694	168	895	620
v/s Ratio Prot	0.06	c0.32		c0.13	0.24		c0.09	0.21	0.07	0.07	c0.25	0.02
v/s Ratio Perm	0.08		0.04	0.17		0.10			0.09			0.03
v/c Ratio	0.31	1.22	0.16	0.65	0.91	0.39	0.90	0.77	0.34	0.68	0.97	0.11
Uniform Delay, d1	21.5	44.4	34.3	26.6	43.1	36.5	53.2	40.4	20.5	52.3	43.8	18.7
Progression Factor	0.91	0.77	0.80	1.13	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	113.5	0.8	1.6	15.7	1.6	39.0	4.6	0.1	8.3	22.8	0.0
Delay (s)	19.8	147.6	28.4	31.6	56.3	35.9	92.2	45.0	20.6	60.5	66.6	18.7
Level of Service	B	F	C	C	E	D	F	D	C	E	E	B
Approach Delay (s)		102.3			45.0			45.0			60.0	
Approach LOS		F			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	62.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	901	21	28	682	2	45	0	27	8	0	60
Future Volume (veh/h)	4	901	21	28	682	2	45	0	27	8	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	979	23	56	1364	2	49	0	29	9	0	65
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	100	1253	1062	526	1407	1193	63	0	259	63	0	259
Arrive On Green	1.00	1.00	1.00	0.05	0.75	0.75	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	398	1870	1585	1781	1870	1585	19	0	1585	20	0	1585
Grp Volume(v), veh/h	4	979	23	56	1364	2	49	0	29	9	0	65
Grp Sat Flow(s),veh/h/ln	398	1870	1585	1781	1870	1585	19	0	1585	20	0	1585
Q Serve(g_s), s	1.0	0.0	0.0	1.0	80.0	0.0	0.3	0.0	1.9	0.3	0.0	4.3
Cycle Q Clear(g_c), s	69.3	0.0	0.0	1.0	80.0	0.0	19.6	0.0	1.9	19.6	0.0	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	100	1253	1062	526	1407	1193	63	0	259	63	0	259
V/C Ratio(X)	0.04	0.78	0.02	0.11	0.97	0.00	0.78	0.00	0.11	0.14	0.00	0.25
Avail Cap(c_a), veh/h	100	1253	1062	661	1407	1193	237	0	465	243	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.31	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.5	0.0	0.0	4.3	13.6	3.7	60.0	0.0	42.8	59.9	0.0	43.8
Incr Delay (d2), s/veh	0.2	1.6	0.0	0.0	17.7	0.0	7.4	0.0	0.1	0.4	0.0	0.2
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	0.1	0.5	0.0	0.3	32.9	0.0	1.6	0.0	0.7	0.3	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	1.6	0.0	4.4	31.3	3.7	67.4	0.0	42.8	60.3	0.0	44.0
LnGrp LOS	C	A	A	A	C	A	E	A	D	E	A	D
Approach Vol, veh/h		1006			1422			78			74	
Approach Delay, s/veh		1.6			30.2			58.2			46.0	
Approach LOS		A			C			E			D	

Timer - Assigned Phs	2		4	5	6		8
Phs Duration (G+Y+Rc), s	95.3		24.7	9.9	85.4		24.7
Change Period (Y+Rc), s	5.3		* 4.8	4.0	5.3		* 4.8
Max Green Setting (Gmax), s	74.7		* 35	15.0	55.7		* 35
Max Q Clear Time (g_c+I1), s	82.0		21.6	3.0	71.3		21.6
Green Ext Time (p_c), s	0.0		0.1	0.0	0.0		0.1

Intersection Summary		
HCM 6th Ctrl Delay		20.4
HCM 6th LOS		C

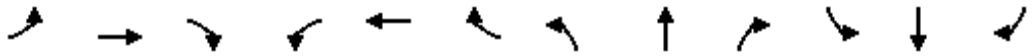
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	899	42	25	698	34	13
Future Volume (vph)	899	42	25	698	34	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1673	
Flt Permitted	1.00	1.00	0.26	1.00	0.96	
Satd. Flow (perm)	1801	1531	476	1801	1673	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	977	46	27	759	37	14
RTOR Reduction (vph)	0	2	0	0	13	0
Lane Group Flow (vph)	977	44	27	759	38	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	409	1548	104	
v/s Ratio Prot	c0.54			0.42		
v/s Ratio Perm		0.03	0.06		c0.02	
v/c Ratio	0.63	0.03	0.07	0.49	0.36	
Uniform Delay, d1	2.6	1.2	1.2	2.0	54.0	
Progression Factor	0.77	0.42	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.0	0.3	1.1	0.8	
Delay (s)	3.6	0.5	1.6	3.1	54.8	
Level of Service	A	A	A	A	D	
Approach Delay (s)	3.5			3.1	54.8	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	4.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	1034	9	10	447	12	40	1	28	198	11	161
Future Volume (vph)	28	1034	9	10	447	12	40	1	28	198	11	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1799	1531		1654			1651	
Flt Permitted		0.95	1.00		0.53	1.00		0.68			0.79	
Satd. Flow (perm)		1705	1531		958	1531		1153			1344	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	1124	10	11	486	13	43	1	30	215	12	175
RTOR Reduction (vph)	0	0	5	0	0	7	0	24	0	0	19	0
Lane Group Flow (vph)	0	1154	5	0	497	6	0	50	0	0	383	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		54.7	54.7		54.7	54.7		9.4			42.4	
Effective Green, g (s)		54.7	54.7		54.7	54.7		9.4			42.4	
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.08			0.35	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		777	697		436	697		90			474	
v/s Ratio Prot												
v/s Ratio Perm		c0.68	0.00		0.52	0.00		c0.04			c0.28	
v/c Ratio		1.49	0.01		1.14	0.01		0.56			0.81	
Uniform Delay, d1		32.6	17.8		32.6	17.8		53.3			35.1	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		225.2	0.0		87.2	0.0		4.2			9.2	
Delay (s)		257.9	17.8		119.9	17.9		57.5			44.3	
Level of Service		F	B		F	B		E			D	
Approach Delay (s)		255.8			117.3			57.5			44.3	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	176.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	110.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	853	52	655	425	20	56	607	1015	318	897	54
Future Volume (veh/h)	61	853	52	655	425	20	56	607	1015	318	897	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	927	0	712	462	0	61	660	1103	346	975	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	1414		357	1576		186	1163	665	279	1537	93
Arrive On Green	0.28	0.28	0.00	0.10	0.44	0.00	0.33	0.33	0.33	0.08	0.45	0.45
Sat Flow, veh/h	920	5274	0	3456	3647	0	544	3554	1533	3456	3398	206
Grp Volume(v), veh/h	66	927	0	712	462	0	61	660	1103	346	510	524
Grp Sat Flow(s),veh/h/ln	920	1702	0	1728	1777	0	544	1777	1533	1728	1777	1826
Q Serve(g_s), s	6.7	19.2	0.0	12.4	10.0	0.0	11.7	18.4	39.3	9.7	26.5	26.5
Cycle Q Clear(g_c), s	6.7	19.2	0.0	12.4	10.0	0.0	23.1	18.4	39.3	9.7	26.5	26.5
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	315	1414		357	1576		186	1163	665	279	804	826
V/C Ratio(X)	0.21	0.66		1.99	0.29		0.33	0.57	1.66	1.24	0.63	0.63
Avail Cap(c_a), veh/h	349	1604		357	1576		186	1163	665	279	804	826
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	38.3	0.0	53.8	21.4	0.0	39.9	33.3	34.3	55.2	25.2	25.2
Incr Delay (d2), s/veh	1.3	2.2	0.0	457.1	0.1	0.0	4.7	2.0	302.6	134.2	3.8	3.7
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	1.6	8.2	0.0	28.0	4.1	0.0	1.8	8.2	74.5	9.4	11.7	12.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	40.5	0.0	510.9	21.5	0.0	44.5	35.4	337.0	189.3	29.0	28.9
LnGrp LOS	D	D		F	C		D	D	F	F	C	C
Approach Vol, veh/h		993			1174			1824			1380	
Approach Delay, s/veh		40.1			318.3			218.0			69.2	
Approach LOS		D			F			F			E	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	39.5	15.0	45.5		59.5		60.5
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	21.2	11.7	41.3		12.0		28.5
Green Ext Time (p_c), s	0.0	11.3	0.0	0.0		3.3		9.2

Intersection Summary	
HCM 6th Ctrl Delay	168.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

EXISTING PLUS PROJECT – DRIVEWAY ANALYSIS

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↱		↑↑↑		↱
Traffic Vol, veh/h	1094	174	0	1414	0	35
Future Vol, veh/h	1094	174	0	1414	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	85	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1189	189	0	1537	0	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	595
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	383
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	383
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	383	-	-	-
HCM Lane V/C Ratio	0.099	-	-	-
HCM Control Delay (s)	15.4	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	799	110	0	586
Future Vol, veh/h	0	16	799	110	0	586
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	868	120	0	637

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	494	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	521	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	521	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	521	-
HCM Lane V/C Ratio	-	-	0.033	-
HCM Control Delay (s)	-	-	12.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↱		↑↑↑		↱
Traffic Vol, veh/h	1576	32	0	1345	0	240
Future Vol, veh/h	1576	32	0	1345	0	240
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	85	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1713	35	0	1462	0	261

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	857
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 258
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 258
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	101.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	258	-	-	-
HCM Lane V/C Ratio	1.011	-	-	-
HCM Control Delay (s)	101.2	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	10.1	-	-	-

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

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	108	460	20	0	696
Future Vol, veh/h	0	108	460	20	0	696
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	117	500	22	0	757

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	261	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	738	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	738	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	738	-
HCM Lane V/C Ratio	-	-	0.159	-
HCM Control Delay (s)	-	-	10.8	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.6	-

FUTURE PLUS PROJECT – DRIVEWAY ANALYSIS

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↱		↑↑↑		↱
Traffic Vol, veh/h	1153	174	0	1536	0	35
Future Vol, veh/h	1153	174	0	1536	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	85	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1253	189	0	1670	0	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	627
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	365
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	365
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	365	-	-	-
HCM Lane V/C Ratio	0.104	-	-	-
HCM Control Delay (s)	16	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	894	110	0	709
Future Vol, veh/h	0	16	894	110	0	709
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	972	120	0	771

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	546	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	482	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	482	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	482	-
HCM Lane V/C Ratio	-	-	0.036	-
HCM Control Delay (s)	-	-	12.7	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	9.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↱		↑↑↑		↱
Traffic Vol, veh/h	1699	32	0	1429	0	240
Future Vol, veh/h	1699	32	0	1429	0	240
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	85	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1847	35	0	1553	0	261

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	924
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 233
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 233
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	139.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	233	-	-	-
HCM Lane V/C Ratio	1.12	-	-	-
HCM Control Delay (s)	139.6	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	11.8	-	-	-

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

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	108	669	20	0	767
Future Vol, veh/h	0	108	669	20	0	767
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	117	727	22	0	834

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	375	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	623	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	623	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	623	-
HCM Lane V/C Ratio	-	-	0.188	-
HCM Control Delay (s)	-	-	12.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.7	-

HORIZON YEAR PLUS PROJECT – DRIVEWAY ANALYSIS

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↱		↑↑↑		↱
Traffic Vol, veh/h	1238	174	0	1645	0	35
Future Vol, veh/h	1238	174	0	1645	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	85	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1346	189	0	1788	0	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	673
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	341
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	341
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	341	-	-	-
HCM Lane V/C Ratio	0.112	-	-	-
HCM Control Delay (s)	16.9	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.4	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	953	110	0	755
Future Vol, veh/h	0	16	953	110	0	755
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	1036	120	0	821

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	578	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	459	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	459	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	459	-
HCM Lane V/C Ratio	-	-	0.038	-
HCM Control Delay (s)	-	-	13.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	12.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↱		↑↑↑		↱
Traffic Vol, veh/h	1819	32	0	1526	0	240
Future Vol, veh/h	1819	32	0	1526	0	240
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	85	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1977	35	0	1659	0	261

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	989
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 211
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 211
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	186.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	211	-	-	-
HCM Lane V/C Ratio	1.236	-	-	-
HCM Control Delay (s)	186.2	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	13.5	-	-	-

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

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	108	704	20	0	821
Future Vol, veh/h	0	108	704	20	0	821
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	117	765	22	0	892

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	394	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	605	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	605	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	605	-
HCM Lane V/C Ratio	-	-	0.194	-
HCM Control Delay (s)	-	-	12.4	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.7	-

Appendix F: Alternative Access Supplemental Analysis

Appendix F: Alternative Access Supplemental Analysis

Appendix F summarizes the CEQA and non-CEQA transportation analysis for three alternative driveway access options. These are:

1. Signalized Venice Driveway Alternative
2. National Driveway at Ivy Station Signal Alternative
3. Two Unsignalized Driveways Alternative

All three of these options would close the Washington Boulevard driveway to project traffic and provide emergency access only.

The Signalized Venice Driveway Alternative (Access Alternative 1) would include a new fully-signalized driveway on Venice Boulevard, a right-in/right-out driveway on National Boulevard, and emergency access only from Washington Boulevard. The analysis in this appendix summarizes any parts of the analysis that would be meaningfully different from the main driveway access based on the signalized driveway on Venice Boulevard and the exclusion of a Project driveway on Washington Boulevard.

The National Driveway at Ivy Station Signal Alternative (Access Alternative 2) would include a full access driveway as part of the National Boulevard & Ivy Station intersection (replacing the right-in/right-out driveway on National Boulevard from the Proposed Project), a right-in/right-out driveway on Venice Boulevard, and emergency access only from Washington Boulevard. This Alternative utilizes the existing signalized intersection across from the recent Ivy Station development, allowing left turns into the site from, and left turns exiting the site to southbound National Boulevard.

The Two Unsignalized Driveways Alternative (Access Alternative 3) would include a right-in/right-out driveway on National Boulevard in the same location as the Proposed Project, a right-in/right-out driveway on Venice Boulevard, and emergency access only from Washington Boulevard. This alternative is effectively the same as the Proposed Project excluding the use of the Washington driveway by project trips.

Appendix F fully reviews the CEQA and Non-CEQA for Access Alternative 1, followed by a focused review of salient differences for Access Alternatives 2 and 3.

Access Alternative 1 CEQA Analysis

Vehicle Miles Traveled Analysis

Access Alternative 1 (Signalized Venice Driveway) does not affect the results of the VMT screening analysis. The Project remains within ½ mile from the Metro E (Expo) Line Culver City Station, a key TPA identified in Threshold 2. Therefore, the project is screened from having to conduct VMT impact analysis and is presumed to have a less than significant impact on VMT.

Plans, Programs, Ordinances, and Policies Conflict Review

Access Alternative 1 features and design would not differ from the main Project driveway access option, which supports multimodal transportation options and would be consistent with policies, plans, ordinances, and programs that support alternative modes of transportation. Like the Proposed Project access option, Access Alternative 1 includes features to minimize impacts to the public right-of-way and enhance the user experience by integrating multimodal transportation options, and reduces the overall number of active driveways by one.

Access Alternative 1 would not conflict with adopted policies, plans, ordinances, and programs in the City of Culver City or City of Los Angeles, or preclude both cities actions to fulfill or implement projects associated with these networks and will contribute to overall walkability through enhancements to the Project Site. Installing a signal at the driveway on Venice Boulevard does not conflict with the City of Los Angeles Mobility Plan 2035 designation of Venice Boulevard as a transit priority street and a pedestrian district with protected bicycle lanes. The signal and crosswalks installed at this driveway would improve pedestrian accessibility and help to slow traffic along Venice Boulevard, and do not preclude the implementation of the Transit Enhanced Network and related transit priority treatments. Therefore, the Project access alternative would have a less than significant impact on the both cities' transportation-related plans, programs, ordinances, and policies.

Geometric Design Hazards

This section discusses impacts regarding the potential increase of hazards due to a geometric design feature that generally relates to the design of access points to and from the Project Site and may include safety, operational, or capacity impacts.

All three Project driveways would intersect streets (Washington Boulevard, National Boulevard, or Venice Boulevard) at right angles. The signalized Venice driveway would be designed to comply with City of Los Angeles standards and provide three new crosswalks along the south side of Venice Boulevard across the Project driveway, on the east side of the intersection across Venice Boulevard, and on the north side across Ivy Street. Access Alternative 1 would not substantially increase hazards or conflicts and would contribute to overall walkability through enhancements to the Project Site. Therefore, the Project would cause a less than significant impact regarding geometric design hazards.

Freeway Safety Analysis

The same three freeway off-ramps were analyzed for potential safety impacts under CEQA. While Culver City is the lead agency on this study, the TSCG does not provide guidance on freeway safety analysis. The freeway safety analysis was conducted using LADOT guidance.

Analysis

A queuing study was conducted for the "Existing with Project," "Future with Project" and "Horizon Year with Project" conditions for the Existing conditions, Project buildout year (2025) and Project Horizon year (2045), respectively, using trip generation and forecasted traffic volumes using assignment patterns based on the signalized Venice driveway detailed in later this appendix. Per the guidance, the adequacy of the existing and future storage lengths was evaluated with the 95th percentile queue where 100% of the storage length on each lane of the ramp from the stop line to the gore point was used and 50% of the length of the auxiliary lane was added to the ramp storage area. The analysis was conducted using the Synchro software and HCM 6th Edition. **Table F1** shows the queue lengths and analysis results for both freeway off-ramps in the Existing and Existing plus Project scenarios. **Table F2** shows the queue lengths and analysis results for both freeway off-ramps in the Future Base and Future plus Project scenarios. **Table F3** shows the queue lengths and analysis results for both freeway off-ramps in the Horizon Year and Horizon Year plus Project scenarios. Analysis sheets are provided in **Attachment A**.

Project traffic volumes and future background traffic volumes at the three analyzed off-ramps were estimated using the methodologies described in later in this appendix.

I-10 Westbound Off-Ramp & Robertson Boulevard

The queue length on the I-10 Westbound Off-Ramp to Robertson Boulevard is not projected to exceed ramp capacity in the Existing Base and Existing plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length on the I-10 Westbound Off-Ramp to Robertson Boulevard is not projected to exceed ramp capacity in the Future Base and Future plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length on the I-10 Westbound Off-Ramp to Robertson Boulevard is not projected to exceed ramp capacity in the Horizon Year and Horizon Year plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

I-10 Westbound Off-Ramp & Venice Boulevard

The queue length on the I-10 Westbound Off-Ramp to Venice Boulevard is not projected to exceed ramp capacity in the Existing Base and Existing plus Project scenarios during the AM and PM peak hours. The

Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length on the I-10 Westbound Off-Ramp to Venice Boulevard is not projected to exceed ramp capacity in the Future Base and Future plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than two cars length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length is not projected to exceed ramp capacity in the Horizon Year and Horizon Year plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than two cars length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

I-10 Westbound Off-Ramp & Washington Boulevard

The queue length on the I-10 Westbound Off-Ramp to Washington Boulevard is not projected to exceed ramp capacity in the Existing Base and Existing plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length on the I-10 Westbound Off-Ramp to Washington Boulevard is not projected to exceed ramp capacity in the Future Base and Future plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

The queue length is not projected to exceed ramp capacity in the Horizon Year and Horizon Year plus Project scenarios during the AM and PM peak hours. The Project is projected to add less than one car length (assuming an average queue storage length of 25 feet per car) to the queue in both peak hours.

TABLE F1
FREEWAY OFF-RAMP QUEUING ANALYSIS
EXISTING + PROJECT ALTERNATIVE CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Movement[1]	Storage Length (feet)[2]	Maximum Queue (feet)[3]				Queue Increase		Project Contributes to Unacceptable Queuing	
					Existing (2022)		Existing + Project Alternative					
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
A	Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp	Signal	WBT	2,325	100	275	100	275	0	0	No	No
			WBR	2,325	100	700	100	700	0	0	No	No
B	I-10 WB Off-Ramp/Cadillac Ave & Venice Blvd	Signal	NBT	3,600	325	500	350	500	25	0	No	No
C	I-10 WB Off-Ramp/Electric Dr & Washington Blvd	Signal	NBL	2,725	100	225	100	250	0	25	No	No
			NBT	2,725	100	500	100	500	0	0	No	No

Notes:

1 Movement acronyms represent the cardinal direction (first two letters) and the turn movement (last letter). For example, NBL=Northbound-left movement, NBR = Northbound-right movement, and NBT = Northbound-through movement. Shared indicates that multiple movements are allowed from a single lane.

2 The storage length shown (measured in feet based on online aerial photographs) is the maximum storage length available for a single lane for each movement. Ramp storage lengths were determined assuming that 100% of the storage length on each lane of the ramp from the stop line to the gore point could be used. When an auxiliary lane was present, 50% of the length of the auxiliary lane was added to the ramp storage length.

3 Storage lengths and queues are shown in feet and rounded up to the nearest 25.

TABLE F2
FREEWAY OFF-RAMP QUEUING ANALYSIS
FUTURE (2026) + PROJECT ALTERNATIVE CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Movement[1]	Storage Length (feet)[2]	Maximum Queue (feet)[3]				Queue Increase		Project Contributes to Unacceptable Queuing	
					Future (2026)		Future + Project Alternative					
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
A	Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp	Signal	WBT	2,325	150	350	150	350	0	0	No	No
			WBR	2,325	100	750	100	750	0	0	No	No
B	I-10 WB Off-Ramp/Cadillac Ave & Venice Blvd	Signal	NBT	3,600	400	550	400	550	0	0	No	No
C	I-10 WB Off-Ramp/Electric Dr & Washington Blvd	Signal	NBL	2,725	125	275	125	275	0	0	No	No
			NBT	2,725	125	525	125	525	0	0	No	No

Notes:

1 Movement acronyms represent the cardinal direction (first two letters) and the turn movement (last letter). For example, NBL=Northbound-left movement, NBR = Northbound-right movement, and NBT = Northbound-through movement. Shared indicates that multiple movements are allowed from a single lane.

2 The storage length shown (measured in feet based on online aerial photographs) is the maximum storage length available for a single lane for each movement. Ramp storage lengths were determined assuming that 100% of the storage length on each lane of the ramp from the stop line to the gore point could be used. When an auxiliary lane was present, 50% of the length of the auxiliary lane was added to the ramp storage length.

3 Storage lengths and queues are shown in feet and rounded up to the nearest 25.

TABLE F3
FREEWAY OFF-RAMP QUEUING ANALYSIS
HORIZON YEAR (2045) + PROJECT ALTERNATIVE CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Movement[1]	Storage Length (feet)[2]	Maximum Queue (feet)[3]				Queue Increase		Project Contributes to Unacceptable Queuing	
					Horizon Year (2045)		Horizon + Project Alternative					
					AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
A	Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp	Signal	WBT	2,325	150	400	150	400	0	0	No	No
			WBR	2,325	100	825	100	825	0	0	No	No
B	I-10 WB Off-Ramp/Cadillac Ave & Venice Blvd	Signal	NBT	3,600	400	650	450	650	50	0	No	No
C	I-10 WB Off-Ramp/Electric Dr & Washington Blvd	Signal	NBL	2,725	125	300	150	300	25	0	No	No
			NBT	2,725	125	600	125	600	0	0	No	No

Notes:

1 Movement acronyms represent the cardinal direction (first two letters) and the turn movement (last letter). For example, NBL=Northbound-left movement, NBR = Northbound-right movement, and NBT = Northbound-through movement. Shared indicates that multiple movements are allowed from a single lane.

2 The storage length shown (measured in feet based on online aerial photographs) is the maximum storage length available for a single lane for each movement. Ramp storage lengths were determined assuming that 100% of the storage length on each lane of the ramp from the stop line to the gore point could be used. When an auxiliary lane was present, 50% of the length of the auxiliary lane was added to the ramp storage length.

3 Storage lengths and queues are shown in feet and rounded up to the nearest 25.

Access Alternative 1 Non-CEQA Analyses

Intersection Operations Analysis

Project Traffic

The development of trip generation estimates for the Project was a 3-step process: trip generation, trip distribution, and traffic assignment. Trip generation and trip distribution remain the same as the Proposed Project. The fully-signalized driveway on Venice Boulevard would create different travel patterns immediately around the site (traffic assignment) compared to the main Project option.

Project Traffic Assignment

The traffic to be generated by the Proposed Project was assigned to the street network using the distribution patterns described in the report. The assignment of traffic volumes took into consideration the locations of the proposed driveways on National Boulevard, Washington Boulevard, and Venice Boulevard as well as the turning movements permitted at the driveways. The Access Alternative 1 driveways are:

- One commercial driveway and garage entrance from National Boulevard with right-only turns in/out from National Boulevard
- One commercial driveway and garage entrance from Venice Boulevard onto the eastern edge of the Project site, signalized with full access in/out from Venice Boulevard
- One driveway from Washington Boulevard for emergency access only (no Project trips)

Figure F1 provides the assignment of the proposed project-generated peak hour traffic volumes at the analyzed intersections during the AM and PM peak hours.

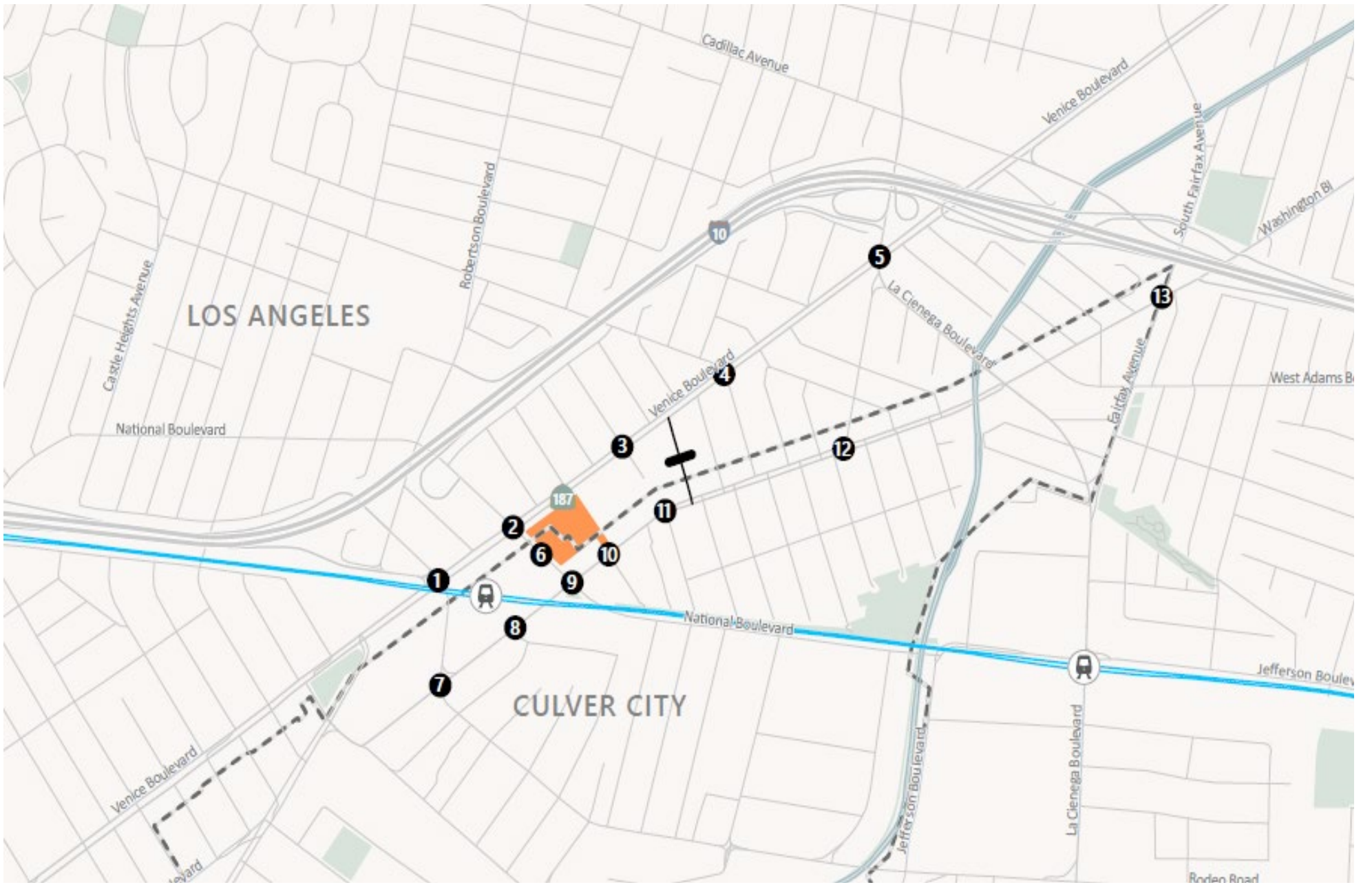
Existing Plus Project Volumes and Level of Service

The estimated Project traffic was added to the existing traffic volumes to estimate Existing plus Project traffic volumes. **Figure F2** shows turning movement traffic volumes for the Existing plus Project scenario.

Existing plus Project traffic volumes, presented in **Figure F2**, were analyzed to determine the intersection LOS and delay for each intersection. **Table F4** summarizes the Existing plus Project LOS. LOS E or F are projected at four of the 13 study intersections during at least one of the analyzed peak hours, including:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
5. La Cienega Boulevard & Venice Boulevard (PM Peak Hour)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (PM Peak Hour)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

Detailed LOS calculation worksheets are presented in **Attachment A**.



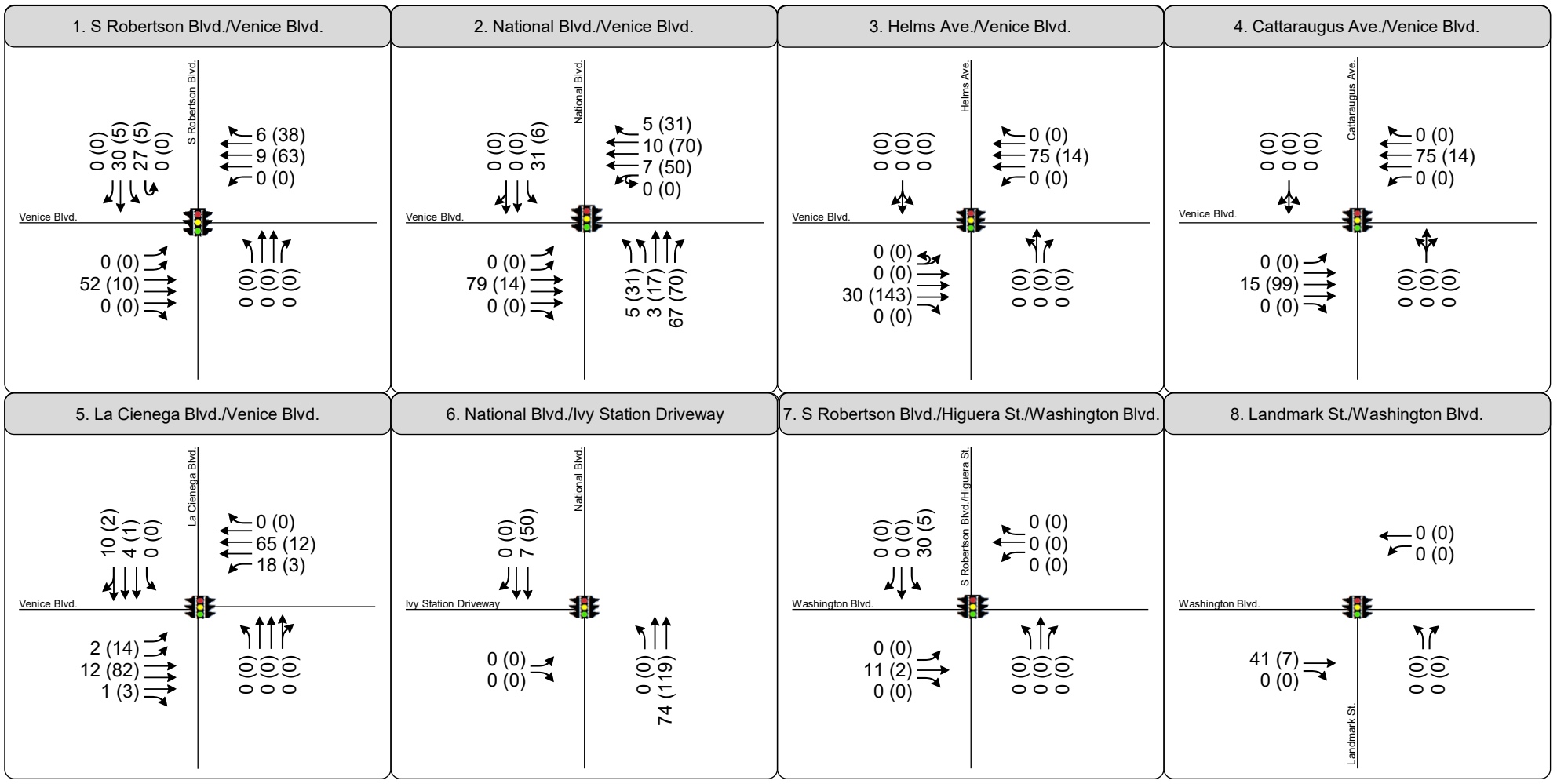
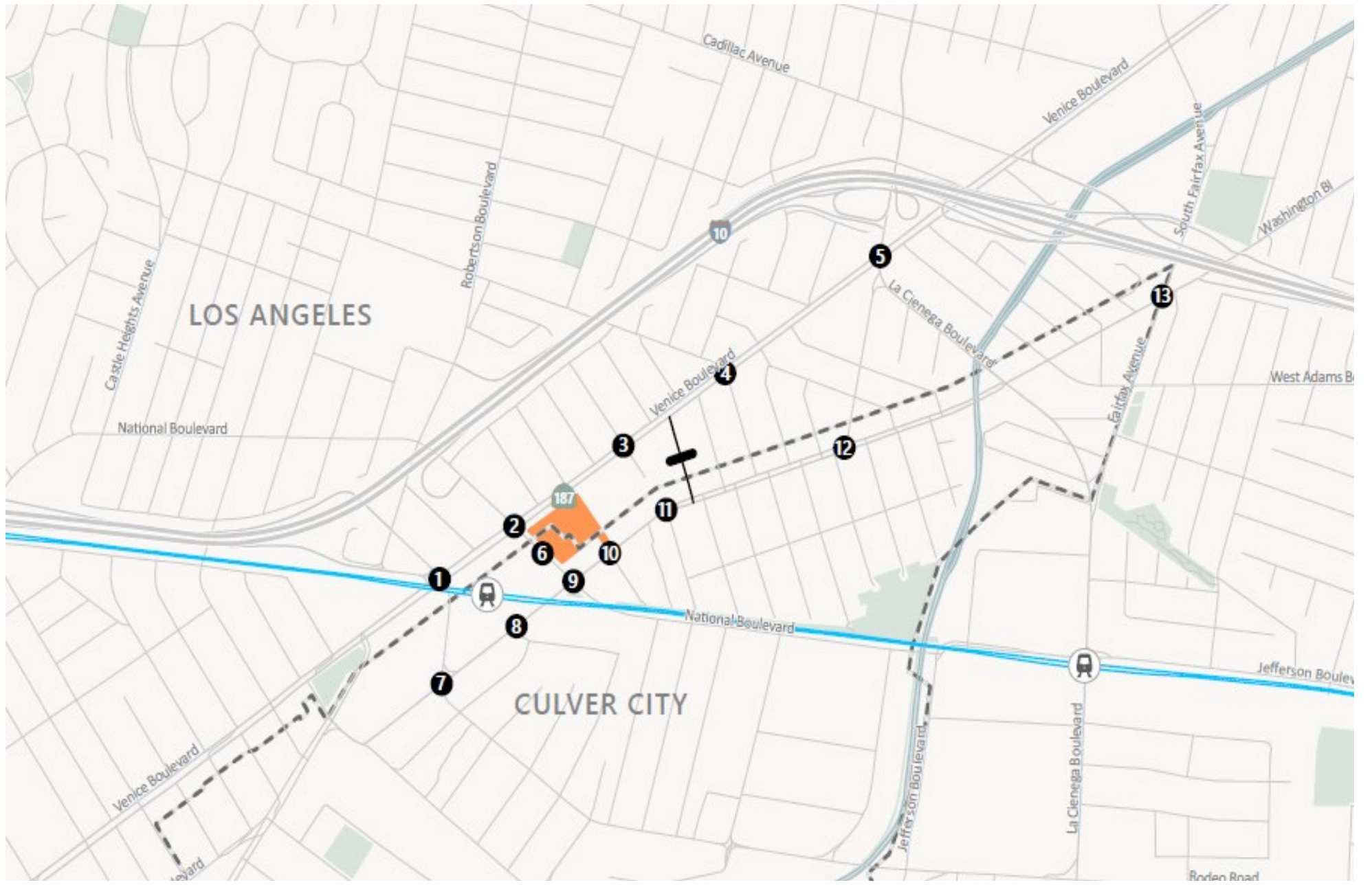


Figure F1

Peak Hour Traffic Volumes and Lane Configurations
Project Only - Project Alternative
Crossings Campus Project



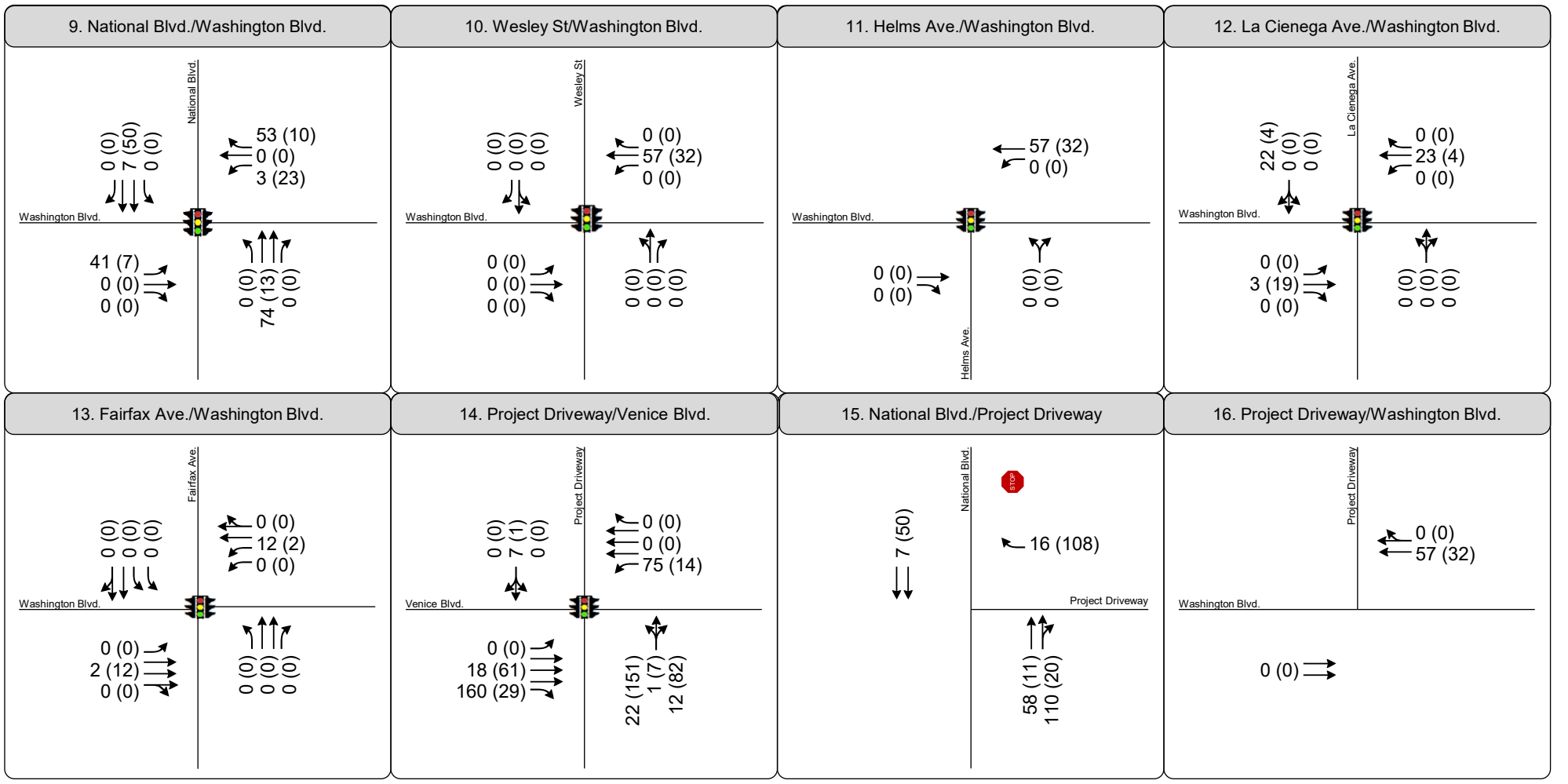
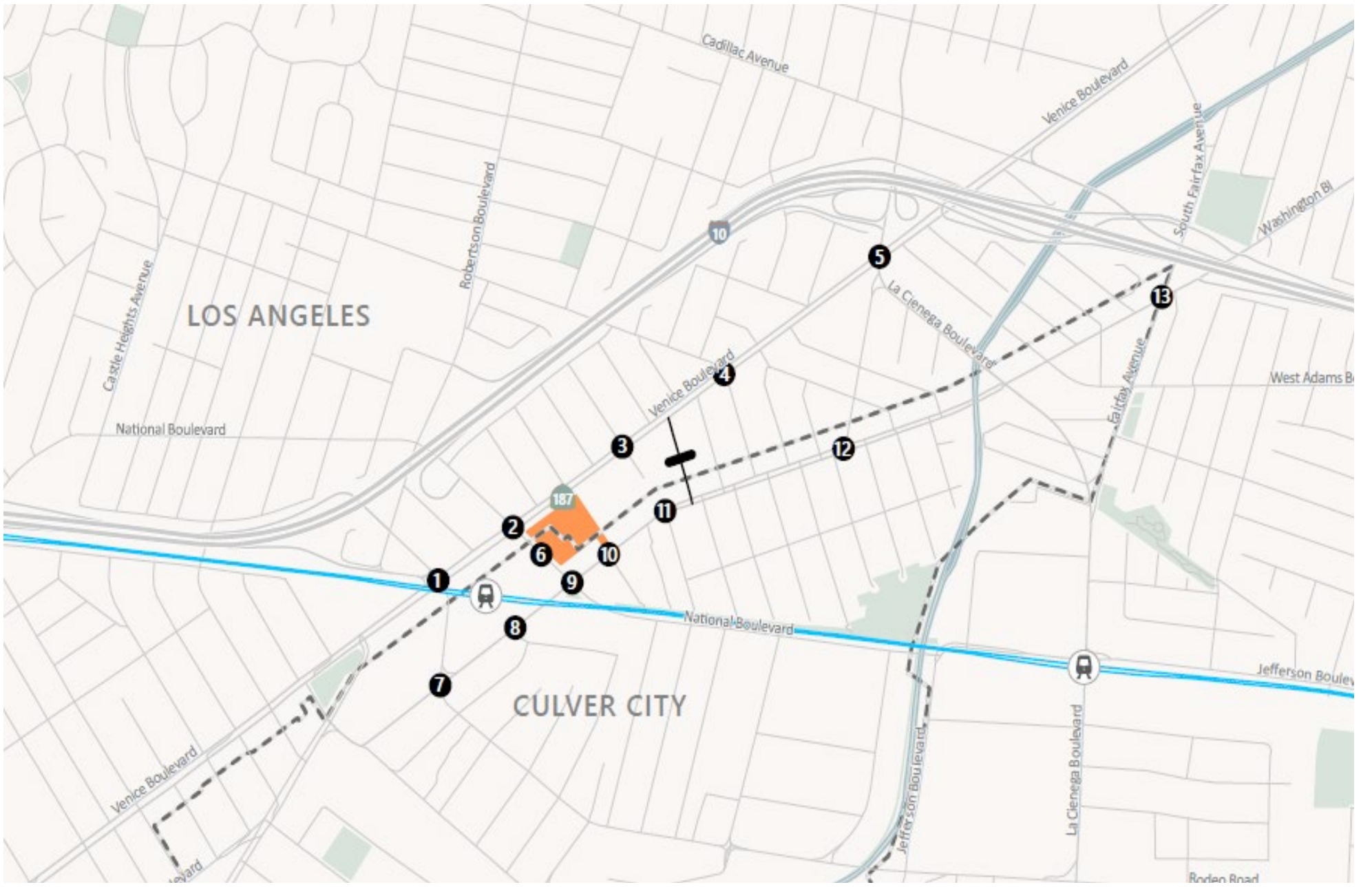


Figure F1

Peak Hour Traffic Volumes and Lane Configurations
Project Only - Project Alternative
Crossings Campus Project



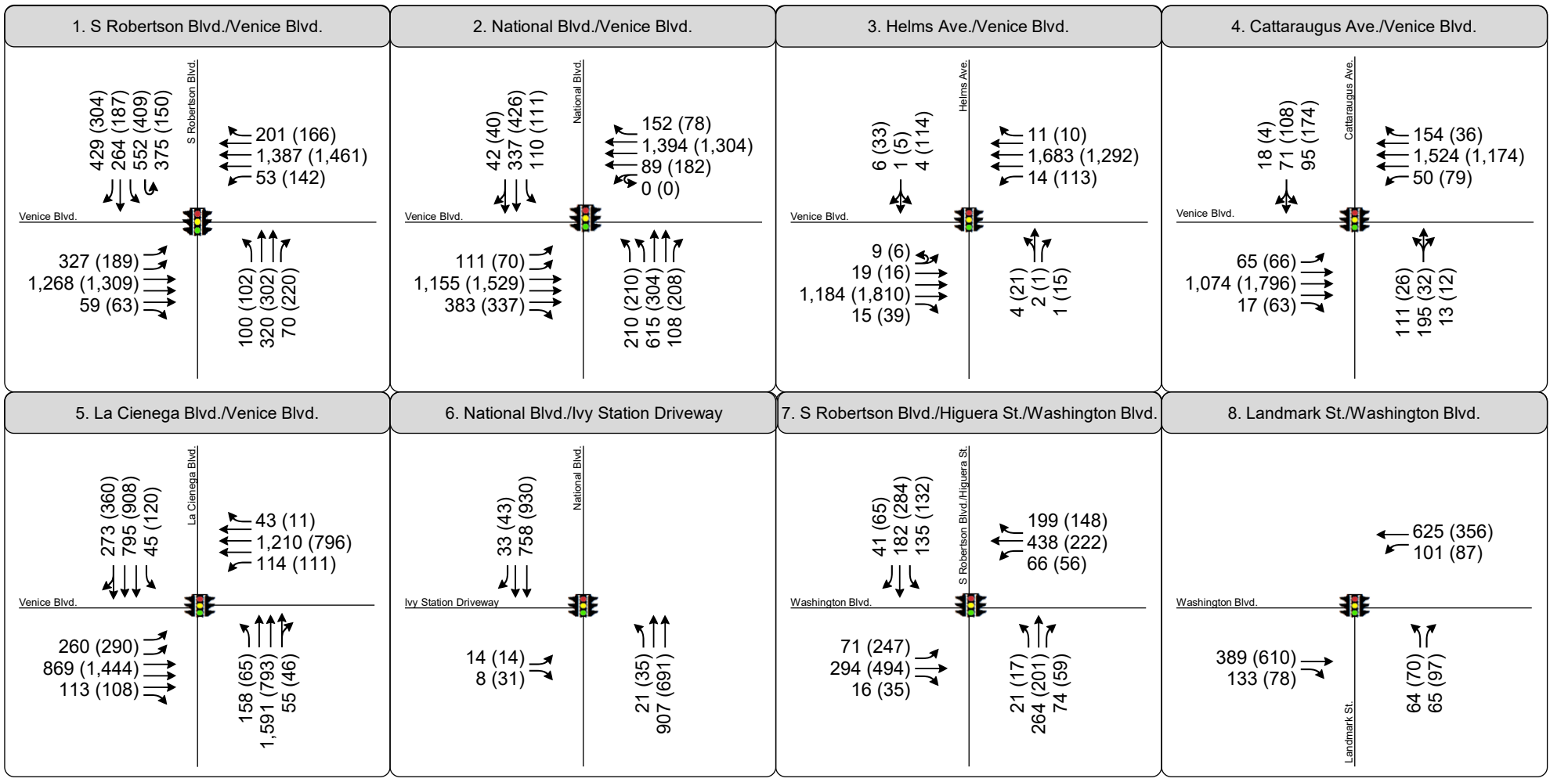


Figure F2

Peak Hour Traffic Volumes and Lane Configurations
Existing + Project Conditions - Project Alternative
Crossings Campus Project

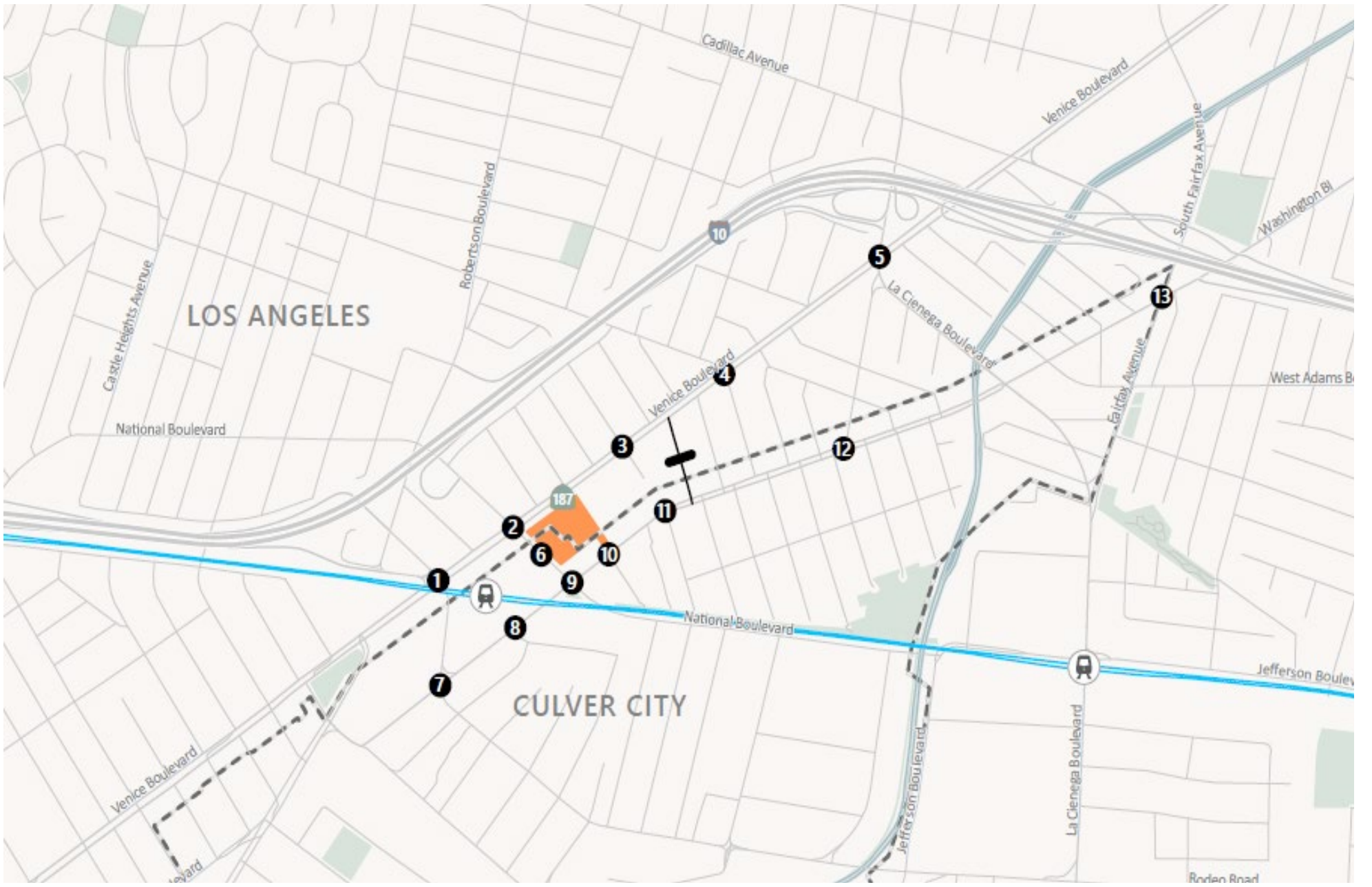


Figure F2

Peak Hour Traffic Volumes and Lane Configurations
Existing + Project Conditions - Project Alternative
Crossings Campus Project

TABLE F4
INTERSECTION LEVELS OF SERVICE AND DELAY
EXISTING + PROJECT ALTERNATIVE CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Existing (2022)		Existing (2022) + Project Alternative	
				Delay [a]	LOS	Delay [a]	LOS
1	S Robertson Blvd & Venice Blvd & Exposition Blvd	Signal	AM	174	F	193	F
			PM	104	F	109	F
2	National Blvd & Venice Blvd	Signal	AM	31	C	31	C
			PM	31	C	47	D
3	Helms Ave & Venice Blvd	Signal	AM	4	A	4	A
			PM	15	B	20	C
4	Cattaraugus Ave & Venice Blvd	Signal	AM	13	B	13	B
			PM	16	B	16	B
5	La Cienega Blvd & Venice Blvd	Signal	AM	47	D	48	D
			PM	59	E	68	E
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	5	A	5	A
			PM	6	A	8	A
7	Higuera St/Robertson Blvd & Washington Blvd	Signal	AM	28	C	29	C
			PM	29	C	30	C
8	Landmark St & Washington Blvd	Signal	AM	9	A	9	A
			PM	10	B	10	B
9	National Blvd & Washington Blvd	Signal	AM	39	D	40	D
			PM	39	D	41	D
10	Wesley St/Driveway & Washington Blvd	Signal	AM	7	A	10	A
			PM	8	A	8	A
11	Helms Ave & Washington Blvd	Signal	AM	6	A	6	A
			PM	4	A	4	A
12	McManus Ave/La Cienega Ave & Washington Blvd	Signal	AM	25	C	28	C
			PM	63	E	70	E
13	Fairfax Ave & Washington Blvd	Signal	AM	128	F	127	F
			PM	61	E	61	E

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

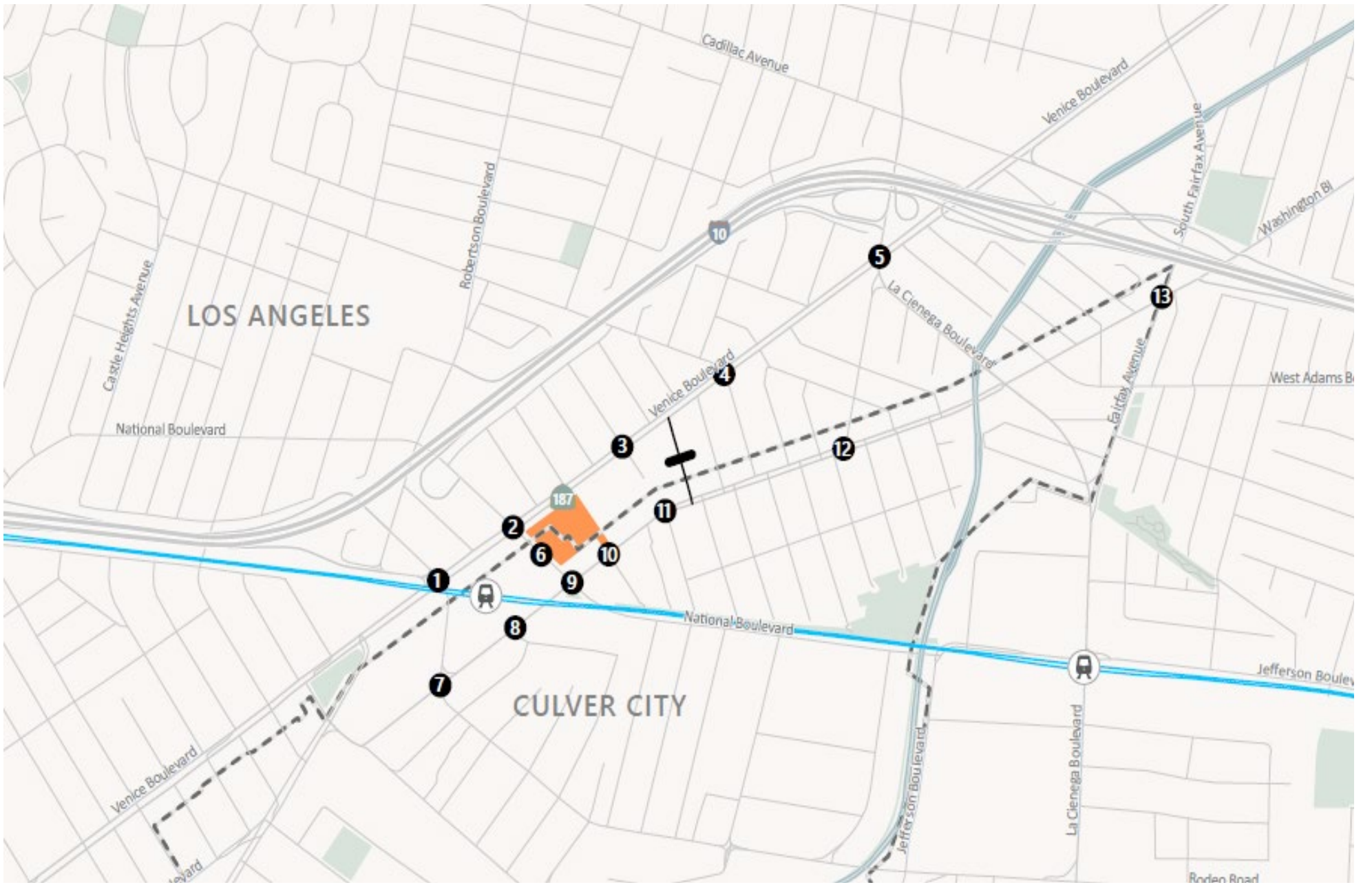
Future Year Plus Project Volumes and Level of Service

The estimated Project traffic was added to the Future Year (2026) traffic volumes to estimate Future Year Plus Project traffic volumes. **Figure F3** shows the Future Year Plus Project turning movement traffic volumes.

Future Year Plus Project traffic volumes, presented in Figure F3, were analyzed to determine the intersection LOS and delay for each intersection. **Table F5** summarizes the Future Year plus Project LOS. LOS E or F are projected at five of the 11 study intersections during at least one of the analyzed peak hours, including:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
2. National Blvd & Venice Blvd (PM Peak Hour)
5. La Cienega Boulevard & Venice Boulevard (PM Peak Hour)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (PM Peak Hour)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

Detailed LOS calculation worksheets are presented in **Attachment A**.



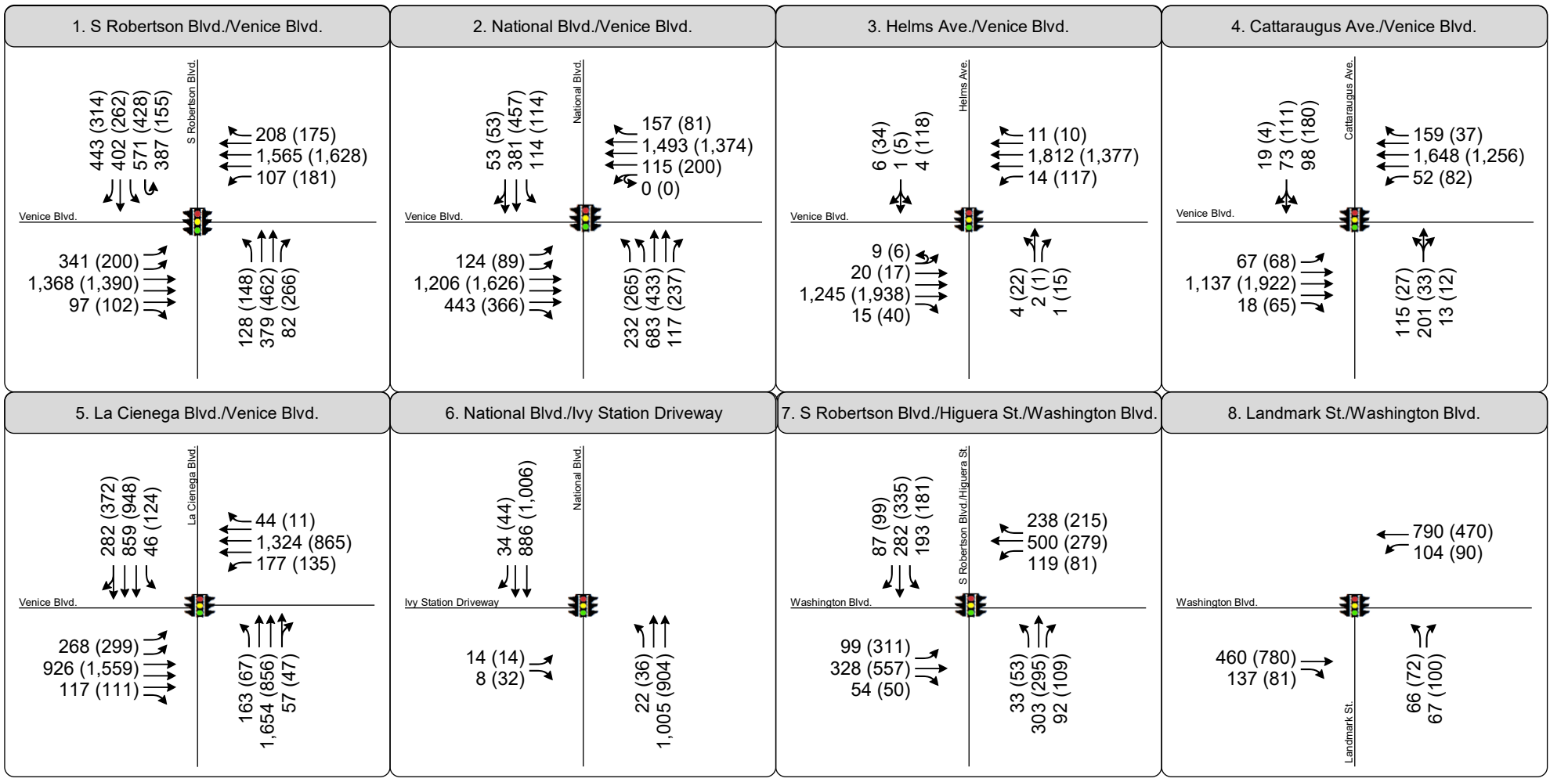
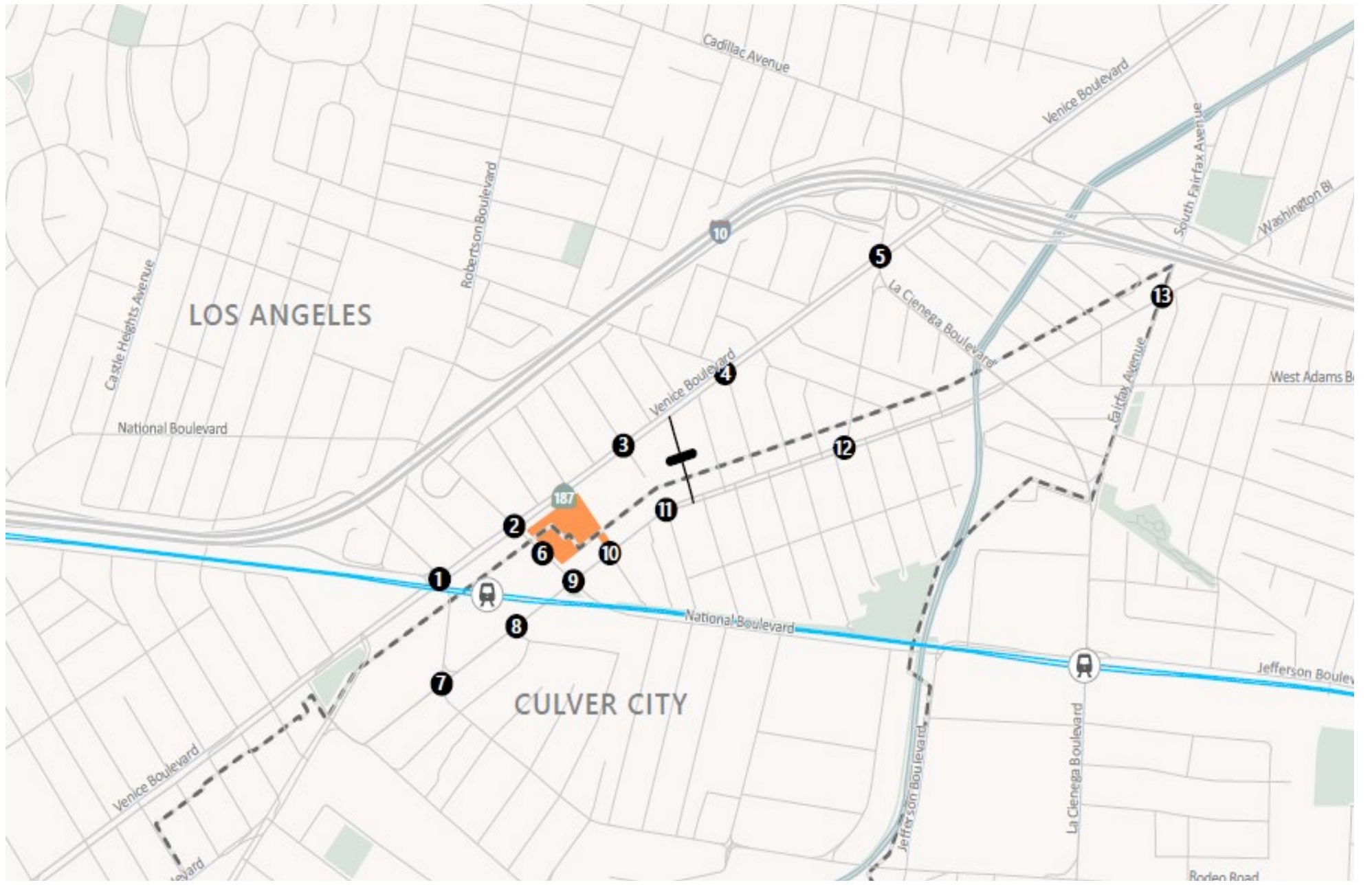


Figure F3

Peak Hour Traffic Volumes and Lane Configurations
Future + Project Conditions - Project Alternative
Crossings Campus Project



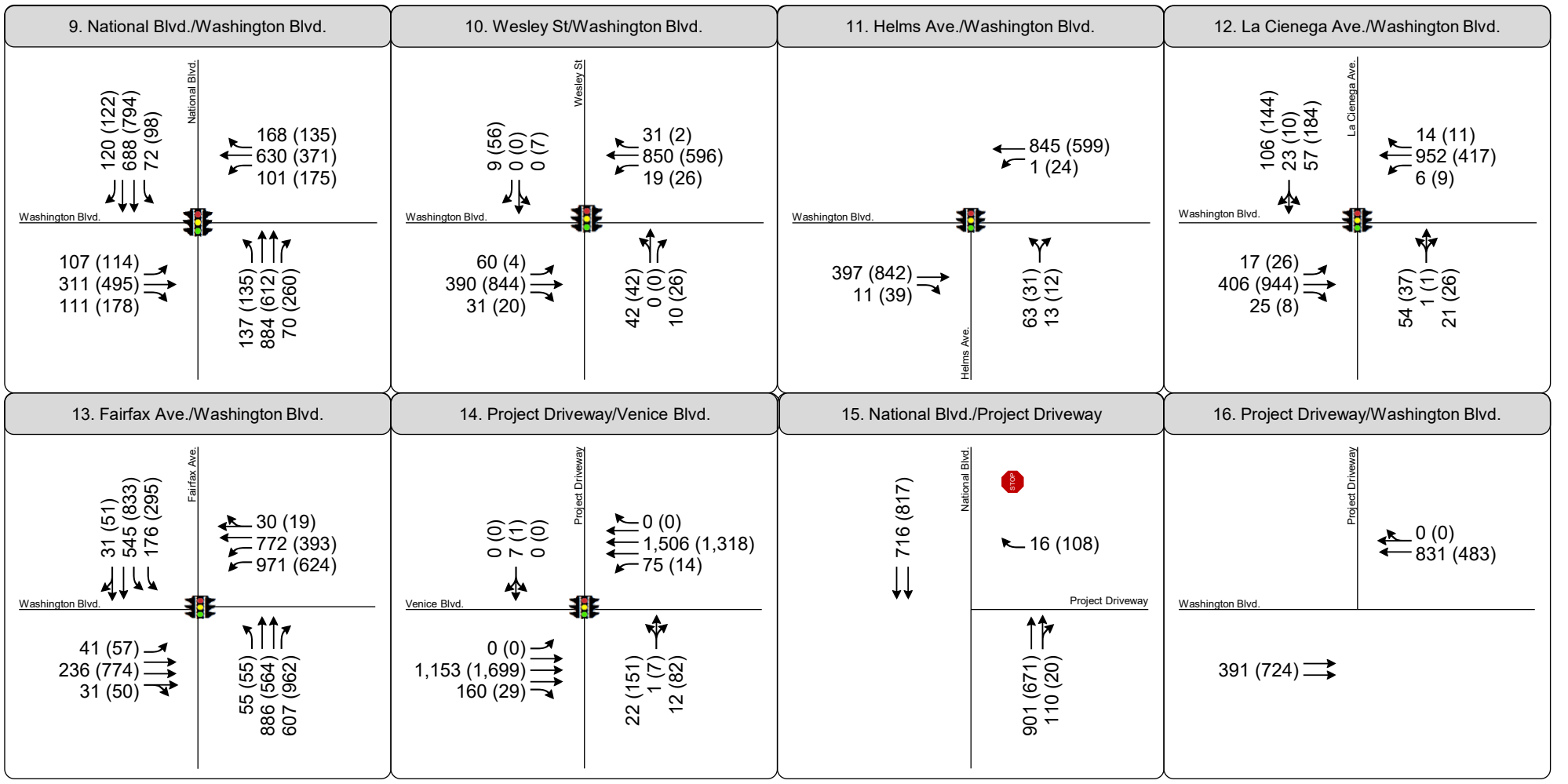


Figure F3

Peak Hour Traffic Volumes and Lane Configurations
Future + Project Conditions - Project Alternative
Crossings Campus Project

TABLE F5
INTERSECTION LEVELS OF SERVICE AND DELAY
FUTURE BASE (2026) + PROJECT ALTERNATIVE CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Future (2026)		Future (2026) + Project Alternative	
				Delay [a]	LOS	Delay [a]	LOS
1	S Robertson Blvd & Venice Blvd & Exposition Blvd	Signal	AM	218	F	239	F
			PM	126	F	128	F
2	National Blvd & Venice Blvd	Signal	AM	31	C	33	C
			PM	41	D	58	E
3	Helms Ave & Venice Blvd	Signal	AM	5	A	5	A
			PM	20	B	26	C
4	Cattaraugus Ave & Venice Blvd	Signal	AM	13	B	13	B
			PM	16	B	17	B
5	La Cienega Blvd & Venice Blvd	Signal	AM	52	D	53	D
			PM	71	E	80	F
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	6	A	5	A
			PM	6	A	8	A
7	Higuera St/Robertson Blvd & Washington Blvd	Signal	AM	35	C	41	D
			PM	44	D	45	D
8	Landmark St & Washington Blvd	Signal	AM	10	B	10	B
			PM	10	A	10	B
9	National Blvd & Washington Blvd	Signal	AM	45	D	47	D
			PM	41	D	46	D
10	Wesley St/Driveway & Washington Blvd	Signal	AM	22	C	39	D
			PM	11	B	12	B
11	Helms Ave & Washington Blvd	Signal	AM	7	A	7	A
			PM	4	A	4	A
12	McManus Ave/La Cienega Ave & Washington Blvd	Signal	AM	30	C	35	D
			PM	110	F	119	F
13	Fairfax Ave & Washington Blvd	Signal	AM	237	F	237	F
			PM	152	F	152	F

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

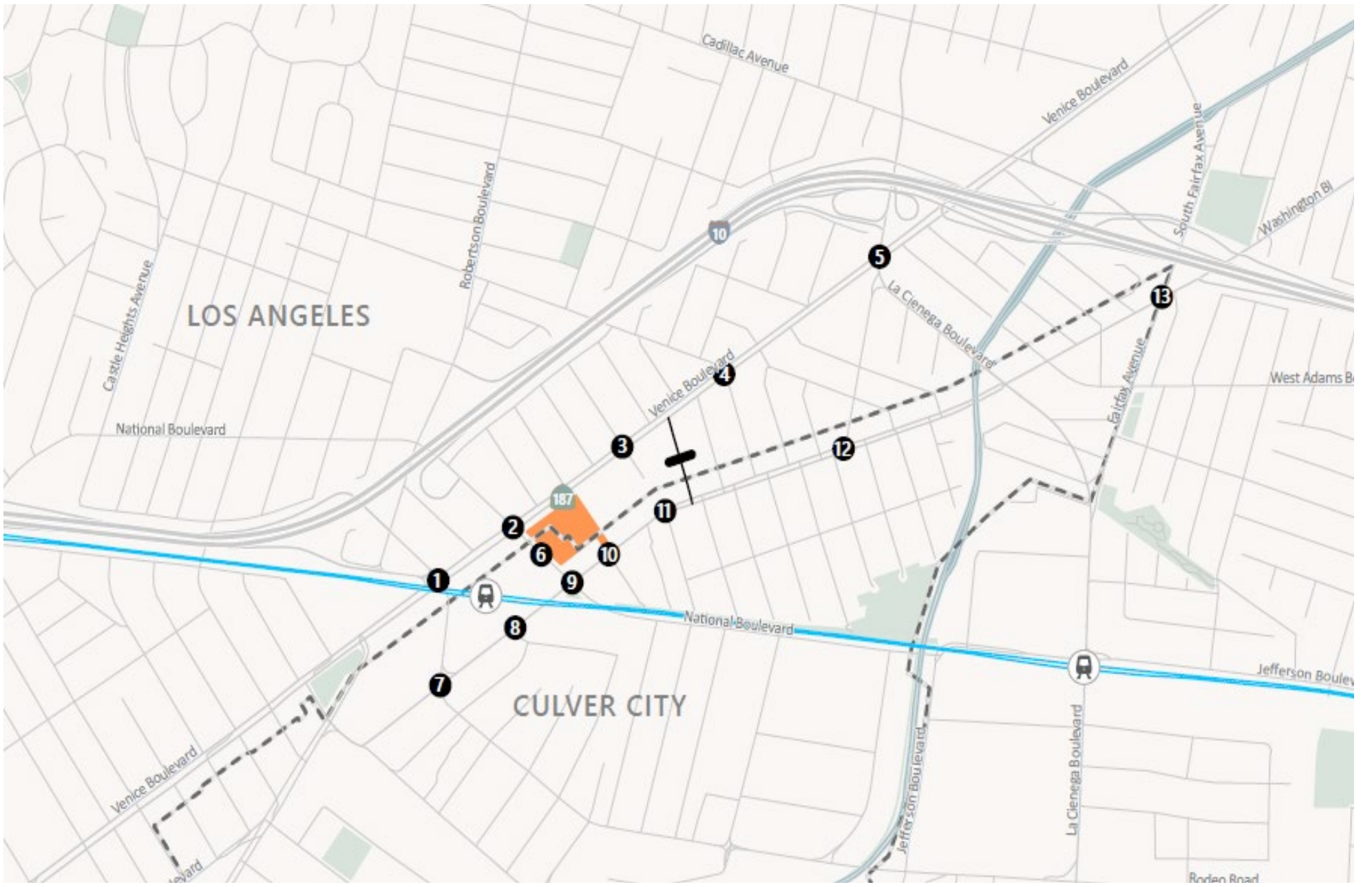
Horizon Year Plus Project Volumes and Level of Service

The estimated Project traffic was added to the Horizon Year (2045) traffic volumes to estimate Horizon Year Plus Project traffic volumes. **Figure F4** shows the Horizon Year Plus Project turning movement traffic volumes.

Horizon Year Plus Project traffic volumes, presented in Figure F4, were analyzed to determine the intersection LOS and delay for each intersection. **Table F6** summarizes the Horizon Year plus Project LOS. LOS E or F are projected at eight of the 13 study intersections during at least one of the analyzed peak hours, including:

1. Robertson Boulevard & Venice Boulevard & Exposition Boulevard (AM/PM Peak Hours)
2. National Blvd & Venice Blvd (PM Peak Hour)
5. La Cienega Boulevard & Venice Boulevard (AM/PM Peak Hours)
7. Higuera Street/Robertson Boulevard & Washington Boulevard (PM Peak Hour)
9. National Boulevard & Washington Boulevard (AM/PM Peak Hours)
10. Wesley Street/Driveway & Washington Boulevard (AM Peak Hour)
12. McManus Avenue/La Cienega Avenue & Washington Boulevard (PM Peak Hour)
13. Fairfax Ave & Washington Boulevard (AM/PM Peak Hours)

Detailed LOS calculation worksheets are presented in **Attachment A**.



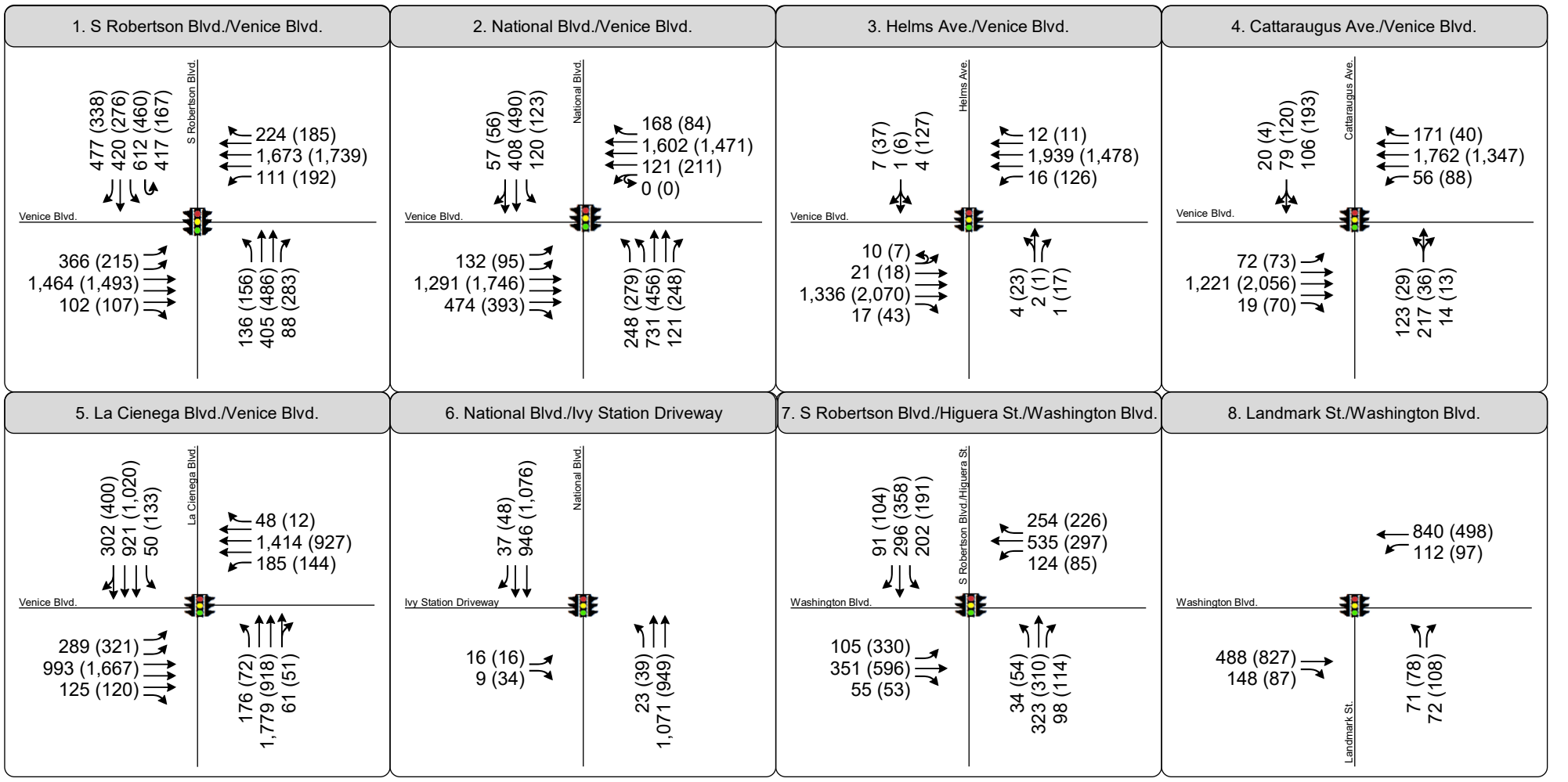


Figure F4

Peak Hour Traffic Volumes and Lane Configurations
Horizon Year + Project Conditions - Project Alternative
Crossings Campus Project

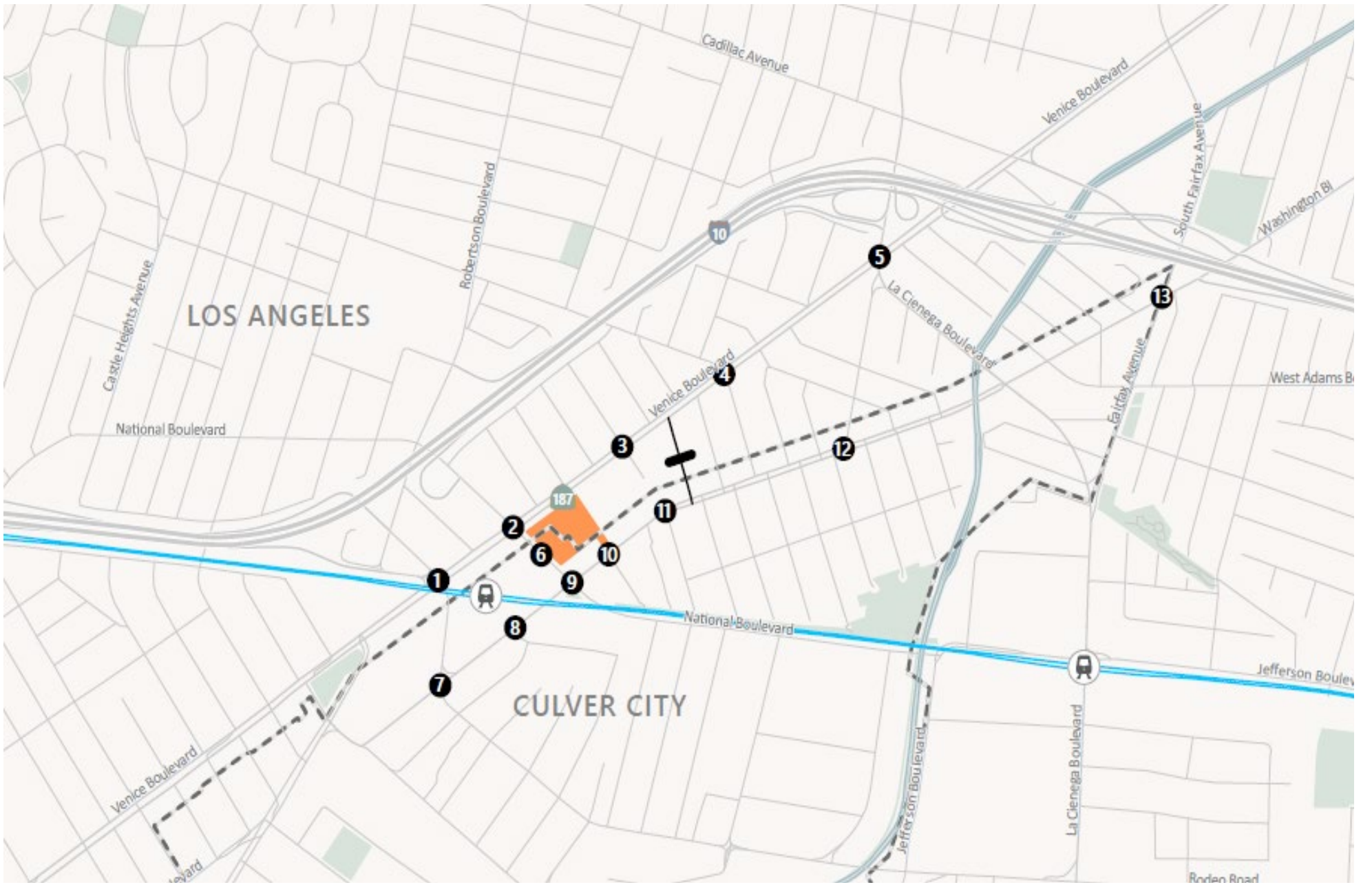


Figure F4

Peak Hour Traffic Volumes and Lane Configurations
Horizon Year + Project Conditions - Project Alternative
Crossings Campus Project

TABLE F6
INTERSECTION LEVELS OF SERVICE AND DELAY
HORIZON YEAR (2045) + PROJECT ALTERNATIVE CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Horizon Year (2045)		Horizon (2045) + Project Alternative	
				Delay [a]	LOS	Delay [a]	LOS
1	S Robertson Blvd & Venice Blvd & Exposition Blvd	Signal	AM	251	F	272	F
			PM	142	F	146	F
2	National Blvd & Venice Blvd	Signal	AM	33	C	34	C
			PM	63	E	71	E
3	Helms Ave & Venice Blvd	Signal	AM	5	A	5	A
			PM	30	C	37	D
4	Cattaraugus Ave & Venice Blvd	Signal	AM	14	B	15	B
			PM	18	B	19	B
5	La Cienega Blvd & Venice Blvd	Signal	AM	61	E	64	E
			PM	83	F	93	F
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	6	A	6	A
			PM	7	A	10	B
7	Higuera St/Robertson Blvd & Washington Blvd	Signal	AM	46	D	53	D
			PM	54	D	56	E
8	Landmark St & Washington Blvd	Signal	AM	11	B	11	B
			PM	10	B	11	B
9	National Blvd & Washington Blvd	Signal	AM	53	D	58	E
			PM	47	D	56	E
10	Wesley St/Driveway & Washington Blvd	Signal	AM	38	D	57	E
			PM	13	B	15	B
11	Helms Ave & Washington Blvd	Signal	AM	8	A	7	A
			PM	4	A	5	A
12	McManus Ave/La Cienega Ave & Washington Blvd	Signal	AM	40	D	52	D
			PM	155	F	164	F
13	Fairfax Ave & Washington Blvd	Signal	AM	254	F	253	F
			PM	169	F	169	F

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

Corrective Actions

Due to LOS E and F conditions with the addition of the proposed Project, corrective actions were considered to reduce intersection queuing and increased delay. Overall delay at most intersections under the Project Alternative is lower (improved) compared with the base Project; therefore, the corrective actions remain the same as the main Project under Access Alternative 1.

The addition of Project traffic is projected to increase overall intersection delay at intersections already operating at LOS E or F, or causing or worsening LOS E or F conditions. LOS E and F conditions and intersection delay would not be considered significant impacts under CEQA. In general, intersection delay is high throughout the area not only due to high traffic demand during peak hours, but also because the area is a dense urban center with high pedestrian volumes and relatively wide streets with long crossing times. LOS measurements under the HCM methodology are reported only for vehicles and do not reflect the full scope of the mobility network around the Project site which provide a high degree of transit, bicycling, and walking opportunities which must also be accommodated at intersections.

The feasibility adding additional travel lanes on Venice and Washington Boulevards was investigated. This would require restriping the street and removing the bicycle lanes on Venice Boulevard and removing the dedicated bus and bicycle lanes on Washington Boulevard. However, repurposing bicycle and transit infrastructure into vehicle travel lanes would conflict with key policy initiatives in the City of LA's *Mobility Plan 2035* and the City of Culver City's *Short Range Mobility Plan*. Therefore, this corrective action was not deemed feasible. Due to the constrained ROW conditions, bicycle and transit infrastructure, and confluence of major roadways near the Project Site, other corrective actions were not found to be feasible, such as the widening of roadways to provide additional vehicular capacity.

Although feasible corrective actions were not able to be found, the Project would provide a variety of voluntary TDM measures which would aim to reduce Project traffic and trip-making. Measures such as a commute marketing program, pedestrian-oriented Project Site, bicycle parking and amenities, and subsidized transit passes would offer alternatives to making trips in private vehicles. Some use of transit, bicycling and walking is assumed in the trip generation for the project, and the full extent of the Project TDM program would further reduce the trip generation and therefore reducing the additional delay caused by Project trips, although not necessarily eliminating any increase in delay related to the Project.

Driveway Level of Service and Queuing Analysis

Three Project driveways are proposed serving the Project Site:

- One commercial driveway and garage entrance from National Boulevard with right-only turns in/out from National Boulevard
- One commercial driveway and garage entrance from Venice Boulevard onto the eastern edge of the Project site, signalized with full access in/out from Venice Boulevard
- One driveway from Washington Boulevard for emergency access only

Only the driveways on Venice Boulevard and National Boulevard were analyzed as the Washington Boulevard driveway operates as emergency access only.

Table F7 shows estimated LOS and queues for the two driveways. The driveway on Venice Boulevard is projected to operate at LOS A during the AM peak hour and LOS B during the PM peak hour under all project scenarios. The driveway on National Boulevard is projected to operate at LOS B during both peak hours under all project scenarios.

Since the Venice Boulevard driveway is signalized under this alternative allowing full in/out access, the westbound left turn queues were reported. The analysis shows that the Project driveway would not adversely affect left-turn queueing under all project scenarios.

Attachment A contains the complete LOS and queuing sheets for the Project driveways.

TABLE F7
DRIVEWAY LEVEL OF SERVICE, DELAY, AND QUEUES - PROJECT ALTERNATIVE
CROSSINGS CAMPUS PROJECT

DRIVEWAY	PEAK HOUR	EXISTING + PROJECT			FUTURE + PROJECT			HORIZON YEAR + PROJECT		
		DELAY	LOS	QUEUE (feet) [a]	DELAY	LOS	QUEUE (feet) [a]	DELAY	LOS	QUEUE (feet) [a]
Venice Driveway & Venice Boulevard [b]	AM	4	A	40	5	A	48	5	A	45
	PM	11	B	17	12	B	16	12	B	14
National Boulevard & National Driveway	AM	12	B	N/A	13	B	N/A	13	B	N/A
	PM	11	B	N/A	12	B	N/A	12	B	N/A

[a] Intersection movement 95th percentile queues rounded to the nearest 25 feet, approximately the length of one vehicle.

[b] Intersection is currently unsignalized, but is proposed to be signalized as part of Project construction.

Neighborhood Street Segment Analysis

Twenty-four hour street segment counts were conducted in May 2022 at Hutchison Avenue between Venice Boulevard and Washington Boulevard, Ivy Street between Venice Boulevard and Regent Street, and Regent Street between Ivy Street and Vera Avenue. **Table F8, Table F9, and Table F10** analyze the existing, future year, and horizon year conditions with and without the Project.

The analysis used the TSCG's and LADOT TAG's significant project conditions thresholds for residential streets, which would not be considered significant impacts under CEQA:

Projected Average Daily Traffic (ADT) with Project	**Project-Related Increase in ADT**
999 or Less	120 trips or more
1,000 – 1,999	12% or more of final ADT
2,000 – 2,999	10% or more of final ADT
3,000 or more	8% or more of final ADT

Based on Tables F8, F9, and F10, this analysis shows that the Project would not create significant project conditions on any of the studied neighborhood streets in Access Alternative 1. Significant project conditions under the TSCG and LA TAG would not be considered significant impacts under CEQA. After the buildout of the Project Site, the City of Culver City and LADOT would reserve the right to monitor traffic volumes on studied neighborhood streets and require traffic calming measures to be built to minimize Project cut-through traffic.

TABLE F8
NEIGHBORHOOD STREET SEGMENT ANALYSIS
EXISTING CONDITIONS - PROJECT ALTERNATIVE
CROSSINGS CAMPUS PROJECT

Location	Jurisdiction [a]	Weekday Bidirectional Daily Volume			Segment Analysis		
		Existing ADT	Project Only	Existing plus Project	% of Final ADT	Significance Threshold	Significant Project Condition?
Hutchison Ave b/w Venice Blvd and Washington Blvd	Los Angeles/Culver City	1,003	*	1,003	-	+12.0%	No
Ivy St b/w Venice Blvd and Regent St	Los Angeles	219	8	227	3.5%	120 Trips	No
Regent St b/w Ivy St and Vera Ave	Los Angeles	1,374	8	1,382	0.6%	+12.0%	No

Note: [a] Culver City and LADOT use the same evaluation criteria for street segment analyses

* A negligible number of Project trips

TABLE F9
NEIGHBORHOOD STREET SEGMENT ANALYSIS
FUTURE (2026) CONDITIONS - PROJECT ALTERNATIVE
CROSSINGS CAMPUS PROJECT

Location	Jurisdiction [a]	Weekday Bidirectional Daily Volume			Segment Analysis		
		Future ADT	Project Only	Future + Project	% of Final ADT	Significance Threshold	Significant Project Condition?
Hutchison Ave b/w Venice Blvd and Washington Blvd	Los Angeles/Culver City	1,035	*	1,035	-	+12.0%	No
Ivy St b/w Venice Blvd and Regent St	Los Angeles	226	8	234	3.4%	120 Trips	No
Regent St b/w Ivy St and Vera Ave	Los Angeles	1,418	8	1,426	0.6%	+12.0%	No

Note: [a] Culver City and LADOT use the same evaluation criteria for street segment analyses

* A negligible number of Project trips

TABLE F10
NEIGHBORHOOD STREET SEGMENT ANALYSIS
HORIZON YEAR (2045) CONDITIONS - PROJECT ALTERNATIVE
CROSSINGS CAMPUS PROJECT

Location	Jurisdiction [a]	Weekday Bidirectional Daily Volume			Segment Analysis		
		Horizon Year ADT	Project Only	Horizon + Project	% of Final ADT	Significance Threshold	Significant Project Condition?
Hutchison Ave b/w Venice Blvd and Washington Blvd	Los Angeles/Culver City	1,115	*	1,115	-	+12.0%	No
Ivy St b/w Venice Blvd and Regent St	Los Angeles	243	8	251	3.2%	120 Trips	No
Regent St b/w Ivy St and Vera Ave	Los Angeles	1,527	8	1,535	0.5%	+12.0%	No

Note:
[a] Culver City and LADOT use the same evaluation criteria for street segment analyses
* A negligible number of Project trips

Transit Operations Analysis

The intersection operations analysis shows that under Access Alternative 1, the overall delay at the study intersections are the similar or better than the main Project scenario. The removal of the Washington Boulevard driveway eliminates any potential conflicts of Project trips with the bus-only lane; although not found to be a substantial issue due to the design of the bus-only lane, removal of the trips is still a benefit for the transit safety and operation. The addition of the signalized driveway on Venice Boulevard also reduces the need for some Project traffic to circulate around the site by providing a left turn into and out of the project, therefore reducing potential intersection delay to transit routes where Project trips would be increasing right turn queues and delay. Therefore, the results of the transit operations analysis would be improved compared with the base Project.

Access Alternative 2 Analysis

Access Alternative 2 differs from the Proposed Project by replacing the proposed right-in/right-out driveway on National Boulevard with a driveway at the existing Ivy Station signalized intersection. Like the other access alternatives, this would also exclude the use of the Washington Boulevard driveway by project trips (although the driveway itself would remain for emergency access only).

The Access Alternative 2 driveways are:

- One commercial driveway and garage entrance from National Boulevard at the existing Ivy Station signalized intersection, allowing left and right turns to and from National Boulevard
- One commercial driveway and garage entrance from Venice Boulevard onto the eastern edge of the Project site, with right-in/right-out access to Venice Boulevard
- One driveway from Washington Boulevard for emergency access only (no Project trips)

This alternative is evaluated only where it differs from the Proposed Project and Access Alternative 1.

CEQA Analysis

The following topics are assumed to be the same or improved compared with Access Alternative 1 as described above:

- CEQA Vehicle Miles Traveled – the same as the Proposed Project
- CEQA Conflicts with Plans, Programs, Ordinances, and Policies – Although a driveway location is shifted, the total number and use of driveways remains the same; the use of an existing signalized intersection for project access does not conflict with any plans, ordinances or policies similar to the Proposed Project
- CEQA Geometric Design Hazards - The use of an existing signalized intersection would not introduce new hazards
- Freeway Safety Analysis – the same as the Proposed Project

Non-CEQA Analysis

Under non-CEQA analyses, the Access Alternative differs slightly from the Proposed Project in trip assignment near to the site, which also affects intersection operations at select locations.

Project Traffic and Corrective Actions

Compared with the Proposed Project, Access Alternative 2 would shift inbound trips previously entering the Washington Boulevard driveway further west to the intersection of Washington and National Boulevard (#9), vehicles would turn right onto National Boulevard, and then turn right again onto Venice Boulevard to access the Los Angeles parcel from the Venice driveway. These trips are not assumed to use

the National Boulevard driveway to enter the project because their destination is the Los Angeles parcel; consistent with the Proposed Project, trips are assigned to the network by parcel.

The signalized Ivy Station/Project driveway would allow trips entering and exiting the Culver City parcel to turn left to and from National Boulevard. This change would shift some project trips previously making a northbound right from National Boulevard into the project, to instead approach the site from Venice Boulevard and make a southbound left from National Boulevard at the existing Ivy Station signal. This would also shift some trips previously exiting the site right from the National Driveway and turning right onto Venice heading east. Under this alternative, those trips instead exit the site making a left from the National Driveway onto National Boulevard and then left again to Washington Boulevard. **Table F11** shows the intersection LOS results under Existing Plus Project at select locations most affected by the change in trip assignment.

The analysis shows that this access alternative and trip assignment would result in queue lengths exceeding available storage at the southbound left and through movements at National Boulevard & Washington Boulevard in the PM peak hour and at the northbound left movement at National Boulevard & Venice Boulevard. **Table F12** shows the relevant queue lengths. The PM peak hour queues southbound on National Boulevard would affect the Ivy Station driveway intersection.

The potential for Corrective Actions remains similar to the Proposed Project; although the locations and specific lanes where traffic delay or queues shift somewhat, there are limited opportunities to address these issues. On National Boulevard, southbound queues in the PM peak hour could extend into the Ivy Station intersection. There is no space available to provide additional storage; the southbound left turn pocket could be extended, but only at the expense of the northbound left into the Ivy Station development which could instead shift queue spillback to the northbound left.

Driveway Level of Service and Queueing

The driveway level of service and queueing analysis differs from the Proposed Project at the National Boulevard driveway, as the alternative driveway is aligned with the Ivy Station signal rather than an unsignalized right-in/right-out driveway. The driveway level of service at this location is reported in **Table F11** and queueing results in **Table F12**.

Neighborhood Street Segment Analysis

The neighborhood street segment analysis for Access Alternative 2 would be the same as the Proposed Project, which affects Hutchison Avenue. The change in driveway assumptions on National Boulevard would not affect the neighborhood traffic assumptions which result from the Venice Boulevard right-in/right-out driveway and not the National Boulevard driveway. The closure of the Washington Boulevard driveway would not result in additional neighborhood traffic intrusion because no neighborhood streets would provide a better alternative for entering the site.

Transit Operations Analysis

The intersection operations analysis shows that under Access Alternative 2, overall delays at the study intersections are similar except at National Boulevard at the Ivy Station driveway, which is not a critical

intersection for transit routes that primarily operate on Venice Boulevard or Washington Boulevard, and no bus stops are located on this segment of National Boulevard. The removal of the Washington Boulevard driveway eliminates any potential conflicts of Project trips with the bus-only lane; although not found to be a substantial issue due to the design of the bus-only lane, removal of the trips is still a benefit for the transit safety and operation.

However, the closure of the Washington Boulevard driveway would result in 62 additional AM peak hour trips continuing west on Washington Boulevard to National Boulevard and utilizing the westbound right-turn pocket at that intersection. That right-turn pocket is a shared space with the transit priority lane and is restricted from right-turn-on-red when bicycles are present due to the signalized bike lane on Washington Boulevard. Although these conditions exist in the Proposed Project and Access Alternative 1, and additional 62 project trips in Access Alternative 2 substantially increases potential delays for westbound transit service on Washington Boulevard. Although those 62 trips would also be crossing the bus lane under the Proposed Project, at the Washington Driveway those trips would need to yield to approaching buses; in Access Alternative 2, those trips would be merging into the right turn lane and therefore create more delay compared with the Proposed Project. Therefore, Access Alternative 2 is worse for transit delay compared with the Proposed Project.

TABLE F11
INTERSECTION LEVELS OF SERVICE AND DELAY
EXISTING + PROJECT ACCESS ALTERNATIVE 2 CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Peak Hour	Existing (2022)		Existing (2022) + Project Alternative	
				Delay [a]	LOS	Delay [a]	LOS
2	National Blvd & Venice Blvd	Signal	AM	31	C	35	D
			PM	31	C	32	C
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	AM	5	A	6	A
			PM	6	A	7	A
9	National Blvd & Washington Blvd	Signal	AM	39	D	41	D
			PM	39	D	42	D

Notes:

[a] Intersection is oversaturated and results above 100 seconds of delay may overstate poor conditions.

TABLE F12
INTERSECTION QUEUING ANALYSIS
EXISTING + PROJECT ACCESS ALTERNATIVE 2 CONDITIONS
CROSSINGS CAMPUS PROJECT

#	Study Intersection	Control	Movement[1]	Storage Length (feet)	Maximum Queue (feet)	
					Existing + Project Alternative	
					AM Peak Hour	PM Peak Hour
2	National Blvd & Venice Blvd	Signal	NBL	115	146	138
6	National Blvd & Ivy Station Driveway/Existing Driveway	Signal	SBL	40	15	4
9	National Blvd & Washington Blvd	Signal	SBL	115	114	175
			SBT	215	305	410
			SBR	65	12	19
			WBR	95	67	73

Notes:

1 Movement acronyms represent the cardinal direction (first two letters) and the turn movement (last letter). For example, NBL=Northbound-left movement, NBR = Northbound-right movement, and NBT = Northbound-through movement. Shared indicates that multiple movements are allowed

Access Alternative 3 Analysis

Access Alternative 3 would have the same driveway access on Venice Boulevard and National Boulevard as the Proposed Project. The only difference is that this alternative would also exclude the use of the Washington Boulevard driveway by project trips (although the driveway itself would remain for emergency access only).

The Access Alternative 3 driveways are:

- One commercial driveway and garage entrance from National Boulevard (south of the Ivy Station signalized intersection) onto the southern edge of the Project site, with right-in/right-out access to National Boulevard
- One commercial driveway and garage entrance from Venice Boulevard onto the eastern edge of the Project site, with right-in/right-out access to Venice Boulevard
- One driveway from Washington Boulevard for emergency access only (no Project trips)

This alternative is evaluated only where it differs from the Proposed Project and Access Alternative 1.

CEQA Analysis

The following topics are assumed to be the same or improved compared with Access Alternative 1 as described above:

- CEQA Vehicle Miles Traveled – the same as the Proposed Project
- CEQA Conflicts with Plans, Programs, Ordinances, and Policies – The number of active driveways is reduced compared with both existing conditions and the Proposed Project, and does not introduce new conflicts
- CEQA Geometric Design Hazards – the same as the Proposed Project
- Freeway Safety Analysis – the same as the Proposed Project

Non-CEQA Analysis

Under non-CEQA analyses, the Access Alternative differs slightly in trip assignment near to the site, which also affects intersection operations at select locations.

Project Traffic and Corrective Actions

Compared with the Proposed Project, Access Alternative 3 would shift AM peak-period inbound trips previously entering the Washington Boulevard driveway further west to the intersection of Washington and National Boulevard (#9). Under this alternative, these vehicles would turn right onto National Boulevard, and then turn right again onto Venice Boulevard to access the Los Angeles parcel from the Venice driveway. This would increase delay and right-turn queues at these specific movements. Because these movements are right-turns and with one exception right turns are allowed on red, the increase in

delays and queues are generally expected to be incremental compared with the Proposed Project. At the intersection of Washington and National Boulevard (#9), right turns on red are restricted when bicycles are present in the westbound bike lane, which has a protected bicycle signal phase. This westbound right-turn pocket is also a shared space with the bus priority lane.

The potential for Corrective Actions remains similar to the Proposed Project; although the locations and specific lanes where traffic delay or queues shift somewhat, there are limited opportunities to address these issues.

Driveway Level of Service and Queueing

The driveway level of service and queueing analysis would be the same as the Proposed Project, despite the closure of the Washington Boulevard driveway, which was an inbound-only driveway and would not create queues into the site.

Neighborhood Street Segment Analysis

The neighborhood street segment analysis for Access Alternative 3 would be the same as the Proposed Project, which affects Hutchison Avenue. The closure of the Washington Boulevard driveway would not result in additional neighborhood traffic intrusion because no neighborhood streets would provide a better alternative for entering the site.

Transit Operations Analysis

The intersection operations analysis is presumed to be similar to the Proposed Project. The removal of the Washington Boulevard driveway eliminates any potential conflicts of Project trips with the bus-only lane; although not found to be a substantial issue due to the design of the bus-only lane, removal of the trips is still a benefit for the transit safety and operation.

However, the closure of the Washington Boulevard driveway would result in 62 additional AM peak hour trips continuing west on Washington Boulevard to National Boulevard and utilizing the westbound right-turn pocket at that intersection. That right-turn pocket is a shared space with the transit priority lane and is restricted from right-turn-on-red when bicycles are present due to the signalized bike lane on Washington Boulevard. Although these conditions exist in the Proposed Project and Access Alternative 1, the additional 62 project trips in Access Alternative 3 substantially increases potential delays for westbound transit service on Washington Boulevard. Although those 62 trips would also be crossing the bus lane under the Proposed Project, at the Washington Driveway those trips would need to yield to approaching buses; in Access Alternative 3, those trips would be merging into the right turn lane and therefore create more delay compared with the Proposed Project. Therefore, Access Alternative 3 is worse for transit delay compared with the Proposed Project.

Summary and Conclusions

Appendix F evaluates three Project access alternative effects on the transportation network compared with the results of the base Project description analyzed in the main body of this report. All three Project access alternatives:

- Have the same land use characteristics as the Proposed Project
- Remove the Washington Boulevard access point for Project trips (although the driveway and curb cut remain for the purpose of emergency access)

Access Alternative 1 revises the driveway assumptions to provide a signalized intersection on Venice Boulevard that allows Project trips to turn left into the site from Venice Boulevard or left exiting the site onto Venice Boulevard. Access Alternative 2 revises the driveway assumptions to provide project vehicle access at the existing Ivy Station signalized intersection, allowing left and right turns to and from National Boulevard. Access Alternative 3 is the same as the proposed Project except to remove the Washington Boulevard access for Project trips.

Access Alternative 1

The effect of the driveway configurations for Access Alternative 1 compared with the Proposed Project removes a substantial number of peak hour Project trips on Washington Boulevard in the AM peak hour, reduces or eliminates Project trips on Hutchison Avenue (a neighborhood street), and simplifies circulation of Project trips around the study area, reducing the overall project effect on intersection and transit delay. The Project access alternative resulted in improved intersection LOS compared with the Proposed Project, but does not fully reduce any intersection delay increases from Project traffic.

For all other evaluation criteria, the Project access alternative would have the same or marginally improved outcomes compared with the Proposed Project.

Access Alternative 2

The effect of the driveway configurations for Access Alternative 2 compared with the Proposed Project increases the number of peak hour Project trips on National and Washington Boulevards in the PM peak hour compared with the Proposed Project and Access Alternative 1. This alternative improves direct access to the site compared with the Proposed Project by providing left-turn access into and out of the Ivy Station Driveway; however, this affects a relatively small portion of the project traffic as it is assumed to primarily serve the Culver City parcel and only directly benefits trips approaching the site from the west or trips exiting the site to the south. The closure of the Washington Driveway in this alternative also shifts 62 AM peak hour project trips west to National Boulevard, adding more trips circulating around the block to the Venice driveway and increasing potential delay for westbound transit service on Washington Boulevard.

Access Alternative 3

The effect of the driveway configurations for Access Alternative 3 compared with the Proposed Project increases the number of peak hour Project trips on National Boulevard in the AM peak hour and does not eliminate Project trips on Hutchison Avenue (a neighborhood street). Circulation is not simplified under this alternative due to the removal of the Washington Boulevard driveway for project trips which must circulate around the block on National and Venice boulevards to reach the Los Angeles parcel. The closure of the Washington Driveway in this alternative without the provision of left-turns into the Venice Boulevard driveway also shifts 62 AM peak hour project trips west to National Boulevard, adding more trips circulating around the block to the Venice driveway and increasing potential delay for westbound transit service on Washington Boulevard.

EXISTING PLUS PROJECT – FREEWAY ANALYSIS
PROJECT ALTERNATIVE

17: S Robertson Blvd & Kincardine Ave/I-10 WB Off-Ramp

05/31/2022

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	138	111	165	185	62	1197	1468
v/c Ratio	0.76	0.39	0.51	0.64	0.37	0.50	0.64
Control Delay	58.6	29.2	37.1	34.9	15.6	8.0	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	29.2	37.1	34.9	15.6	8.0	10.0
Queue Length 50th (ft)	75	47	85	75	12	142	203
Queue Length 95th (ft)	84	57	91	82	57	251	363
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	326	497	578	483	168	2393	2291
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.22	0.29	0.38	0.37	0.50	0.64

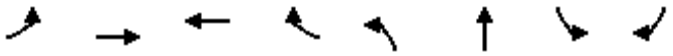
Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	76	657	2060	333	789	92	75
v/c Ratio	1.29	0.28	0.88	0.43	0.81	0.33	0.37
Control Delay	241.7	20.2	34.7	12.0	46.1	54.9	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	241.7	20.2	34.7	12.0	46.1	54.9	15.2
Queue Length 50th (ft)	~75	110	519	72	293	35	0
Queue Length 95th (ft)	#144	153	#700	162	348	61	42
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	2339	2339	778	1133	638	360
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.28	0.88	0.43	0.70	0.14	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	30	271	1015	738	101	111	141	61
v/c Ratio	0.15	0.15	0.56	0.60	0.38	0.39	0.35	0.22
Control Delay	17.9	13.0	17.8	3.1	35.2	29.4	38.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	13.0	17.8	3.1	35.2	29.4	38.4	4.9
Queue Length 50th (ft)	7	34	169	0	56	51	39	0
Queue Length 95th (ft)	36	87	#391	50	82	80	65	16
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	199	1821	1821	1247	547	562	472	300
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.56	0.59	0.18	0.20	0.30	0.20

Intersection Summary

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

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	97	66	516	955	23	989	1516
v/c Ratio	0.73	0.13	0.88	1.81	0.29	0.54	0.84
Control Delay	61.4	17.1	46.4	395.7	22.1	14.9	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	17.1	46.4	395.7	22.1	14.9	23.0
Queue Length 50th (ft)	49	19	279	~823	6	175	345
Queue Length 95th (ft)	#79	32	264	#686	28	227	445
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	132	524	588	527	83	1885	1862
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.13	0.88	1.81	0.28	0.52	0.81

Intersection Summary

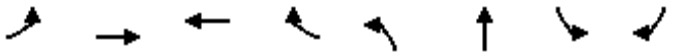
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	62	1373	1164	138	1089	430	212
v/c Ratio	0.83	0.82	0.69	0.24	0.88	0.89	0.53
Control Delay	105.6	41.2	37.0	6.6	45.2	71.9	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	41.2	37.0	6.6	45.2	71.9	11.2
Queue Length 50th (ft)	45	360	289	4	401	171	0
Queue Length 95th (ft)	#135	423	342	49	493	#264	71
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	75	1681	1681	579	1283	484	404
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.82	0.69	0.24	0.85	0.89	0.52

Intersection Summary

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	10	1018	496	329	294	509	357	124
v/c Ratio	0.04	0.85	0.41	0.37	0.55	0.94	0.78	0.39
Control Delay	20.6	35.6	23.8	2.5	29.0	55.2	50.2	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	35.6	23.8	2.5	29.0	55.2	50.2	10.7
Queue Length 50th (ft)	4	282	113	0	141	278	102	0
Queue Length 95th (ft)	15	#397	157	37	226	#488	#161	48
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	253	1200	1200	905	547	553	472	324
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.85	0.41	0.36	0.54	0.92	0.76	0.38

Intersection Summary

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

FUTURE PLUS PROJECT – FREEWAY ANALYSIS
PROJECT ALTERNATIVE

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	143	114	276	191	65	1275	1630
v/c Ratio	0.89	0.32	0.69	0.55	0.62	0.57	0.76
Control Delay	79.9	24.5	39.7	29.2	45.5	11.2	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.9	24.5	39.7	29.2	45.5	11.2	15.6
Queue Length 50th (ft)	79	46	145	78	19	186	293
Queue Length 95th (ft)	87	53	134	81	#107	328	#550
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	228	497	568	478	104	2228	2140
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.23	0.49	0.40	0.63	0.57	0.76

Intersection Summary

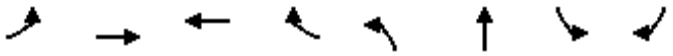
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	78	709	2208	343	879	96	77
v/c Ratio	1.32	0.32	0.99	0.46	0.84	0.34	0.38
Control Delay	255.9	21.9	49.2	13.7	46.6	55.1	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	255.9	21.9	49.2	13.7	46.6	55.1	15.7
Queue Length 50th (ft)	~79	127	~622	87	327	36	0
Queue Length 95th (ft)	#145	167	#788	178	399	64	44
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	2237	2237	748	1130	638	360
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.32	0.99	0.46	0.78	0.15	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	207	308	1139	762	160	159	146	238
v/c Ratio	1.45	0.18	0.66	0.62	0.53	0.50	0.35	0.59
Control Delay	261.9	14.4	21.2	3.3	37.5	33.8	38.1	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	261.9	14.4	21.2	3.3	37.5	33.8	38.1	11.7
Queue Length 50th (ft)	~158	44	227	0	89	81	39	0
Queue Length 95th (ft)	#278	98	#473	50	124	115	67	65
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	143	1731	1731	1236	547	558	472	421
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.45	0.18	0.66	0.62	0.29	0.28	0.31	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	100	68	606	985	24	1125	1635
v/c Ratio	1.25	0.13	1.06	1.97	0.30	0.61	0.89
Control Delay	216.4	17.3	86.9	467.6	23.0	15.6	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	216.4	17.3	86.9	467.6	23.0	15.6	25.7
Queue Length 50th (ft)	~73	20	~391	~877	7	210	397
Queue Length 95th (ft)	#112	33	#334	#732	30	272	513
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	80	508	570	499	81	1885	1862
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.25	0.13	1.06	1.97	0.30	0.60	0.88

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

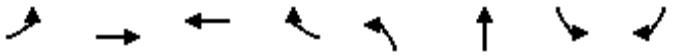
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	64	1493	1253	142	1143	445	218
v/c Ratio	1.08	0.91	0.76	0.25	0.91	0.93	0.54
Control Delay	184.1	47.2	39.4	7.9	47.1	78.2	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	184.1	47.2	39.4	7.9	47.1	78.2	11.3
Queue Length 50th (ft)	~56	405	318	9	432	178	0
Queue Length 95th (ft)	#149	#499	375	55	#545	#278	72
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	59	1648	1648	566	1282	478	407
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.91	0.76	0.25	0.89	0.93	0.54

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	208	1141	555	340	350	530	368	326
v/c Ratio	0.95	0.98	0.48	0.38	0.64	0.96	0.80	0.90
Control Delay	83.1	51.7	25.0	2.6	31.4	59.9	51.6	46.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.1	51.7	25.0	2.6	31.4	59.9	51.6	46.6
Queue Length 50th (ft)	114	333	128	0	174	301	105	86
Queue Length 95th (ft)	#255	#477	177	37	275	#523	#169	#242
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	218	1168	1168	900	551	552	472	367
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.98	0.48	0.38	0.64	0.96	0.78	0.89

Intersection Summary

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

HORIZON YEAR PLUS PROJECT – FREEWAY ANALYSIS
PROJECT ALTERNATIVE

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	154	123	286	206	69	1369	1743
v/c Ratio	0.93	0.33	0.69	0.58	0.87	0.62	0.83
Control Delay	87.0	24.4	38.5	31.2	97.7	12.5	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.0	24.4	38.5	31.2	97.7	12.5	18.7
Queue Length 50th (ft)	85	49	147	89	29	223	360
Queue Length 95th (ft)	95	57	139	92	#89	368	#662
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	225	497	568	473	79	2192	2106
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.25	0.50	0.44	0.87	0.62	0.83

Intersection Summary

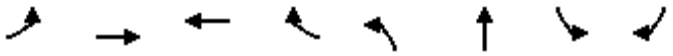
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	85	761	2368	370	937	102	84
v/c Ratio	1.42	0.35	1.08	0.50	0.87	0.36	0.40
Control Delay	293.7	22.9	78.9	15.5	48.1	55.3	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	293.7	22.9	78.9	15.5	48.1	55.3	16.7
Queue Length 50th (ft)	~90	142	~772	107	348	39	0
Queue Length 95th (ft)	#157	181	#884	204	434	67	49
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	60	2186	2186	735	1130	638	362
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.42	0.35	1.08	0.50	0.83	0.16	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	209	329	1220	821	168	166	157	242
v/c Ratio	1.82	0.19	0.72	0.67	0.54	0.52	0.37	0.60
Control Delay	420.6	14.8	23.1	4.2	37.7	34.0	38.0	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	420.6	14.8	23.1	4.2	37.7	34.0	38.0	12.6
Queue Length 50th (ft)	~179	50	264	7	93	84	42	4
Queue Length 95th (ft)	#301	104	#525	70	129	121	71	72
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	115	1706	1706	1235	547	557	472	418
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.82	0.19	0.72	0.66	0.31	0.30	0.33	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	108	74	647	1061	25	1200	1754
v/c Ratio	1.35	0.15	1.16	2.19	0.31	0.64	0.94
Control Delay	248.5	17.7	120.0	563.8	24.0	16.0	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	248.5	17.7	120.0	563.8	24.0	16.0	31.0
Queue Length 50th (ft)	~81	22	~440	~978	7	232	458
Queue Length 95th (ft)	#120	35	#386	#810	31	300	#654
Internal Link Dist (ft)			255			578	242
Turn Bay Length (ft)					80		
Base Capacity (vph)	80	498	558	484	80	1885	1863
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.15	1.16	2.19	0.31	0.64	0.94

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

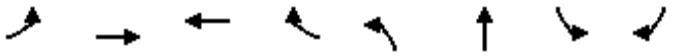
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBR
Lane Group Flow (vph)	68	1599	1345	153	1229	478	236
v/c Ratio	1.13	0.99	0.83	0.27	0.96	1.01	0.56
Control Delay	197.3	59.4	42.5	9.0	53.7	95.7	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	197.3	59.4	42.5	9.0	53.7	95.7	11.5
Queue Length 50th (ft)	~61	448	350	15	483	~196	0
Queue Length 95th (ft)	#158	#561	411	64	#637	#308	75
Internal Link Dist (ft)		719	1485		733		
Turn Bay Length (ft)	240			200		150	
Base Capacity (vph)	60	1622	1622	559	1282	472	420
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.99	0.83	0.27	0.96	1.01	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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



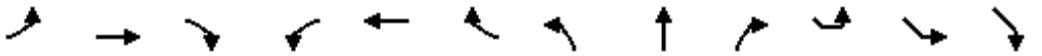
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBR
Lane Group Flow (vph)	209	1222	595	366	373	570	397	336
v/c Ratio	1.04	1.05	0.51	0.41	0.68	1.05	0.84	0.96
Control Delay	108.7	70.3	25.5	3.7	33.2	81.8	55.0	61.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.7	70.3	25.5	3.7	33.2	81.8	55.0	61.8
Queue Length 50th (ft)	~130	~401	140	14	189	~369	114	106
Queue Length 95th (ft)	#266	#530	191	55	297	#583	#189	#277
Internal Link Dist (ft)		329	337			233		
Turn Bay Length (ft)	120						140	
Base Capacity (vph)	200	1166	1166	885	547	545	472	350
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	1.05	0.51	0.41	0.68	1.05	0.84	0.96

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

EXISTING PLUS PROJECT
PROJECT ALTERNATIVE



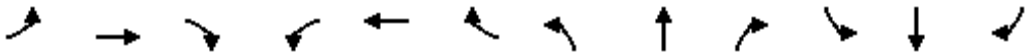
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	327	1268	59	53	1387	201	100	320	70	375	552	264
Future Volume (vph)	327	1268	59	53	1387	201	100	320	70	375	552	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.78	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1159	1711	4916	1405	1711	3421	1191	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1159	1711	4916	1405	1711	3421	1191	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	352	1363	63	56	1460	212	106	340	74	417	613	293
RTOR Reduction (vph)	0	0	37	0	0	103	0	0	53	224	0	0
Lane Group Flow (vph)	352	1363	26	56	1460	109	106	340	21	193	613	293
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.9	49.6	49.6	6.4	40.1	40.1	25.0	25.0	33.4	12.0	12.0	12.0
Effective Green, g (s)	15.9	49.6	49.6	6.4	40.1	40.1	25.0	25.0	33.4	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.41	0.41	0.05	0.33	0.33	0.21	0.21	0.28	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	439	2031	479	91	1642	469	356	712	331	171	171	153
v/s Ratio Prot	c0.11	0.28		0.03	c0.30		0.06	c0.10	0.00	0.11	c0.36	0.19
v/s Ratio Perm			0.02			0.08			0.01			
v/c Ratio	0.80	0.67	0.05	0.62	0.89	0.23	0.30	0.48	0.06	1.13	3.58	1.92
Uniform Delay, d1	50.5	28.6	21.1	55.6	37.8	28.8	40.1	41.8	31.8	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.33	0.61	0.65	1.17	1.11	1.28	1.00	1.00	1.00
Incremental Delay, d2	9.6	1.8	0.2	6.5	6.0	0.9	0.1	0.1	0.0	107.4	1177.6	435.1
Delay (s)	60.1	30.4	21.3	80.5	29.2	19.7	47.2	46.7	40.7	161.4	1231.6	489.1
Level of Service	E	C	C	F	C	B	D	D	D	F	F	F
Approach Delay (s)		35.9			29.7			45.9			548.6	
Approach LOS		D			C			D			F	

Intersection Summary			
HCM 2000 Control Delay	193.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	429
Future Volume (vph)	429
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	477
RTOR Reduction (vph)	243
Lane Group Flow (vph)	234
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.9
Effective Green, g (s)	27.9
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	346
v/s Ratio Prot	0.09
v/s Ratio Perm	0.07
v/c Ratio	0.68
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	4.1
Delay (s)	46.1
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	1155	383	89	1394	152	210	615	108	110	337	42
Future Volume (vph)	111	1155	383	89	1394	152	210	615	108	110	337	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1450	1711	4916	1334	3385	3490	1500	1711	3356	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.48	1.00	
Satd. Flow (perm)	3319	4916	1450	1711	4916	1334	3385	3490	1500	864	3356	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	119	1242	412	94	1467	160	111	324	57	128	392	49
RTOR Reduction (vph)	0	0	186	0	0	72	0	0	44	0	9	0
Lane Group Flow (vph)	119	1242	226	94	1467	88	111	324	13	128	432	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	11.2	49.5	49.5	12.1	50.4	50.4	10.0	26.7	26.7	36.9	26.8	
Effective Green, g (s)	11.2	49.5	49.5	12.1	50.4	50.4	10.0	26.7	26.7	36.9	26.8	
Actuated g/C Ratio	0.09	0.41	0.41	0.10	0.42	0.42	0.08	0.22	0.22	0.31	0.22	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	309	2027	598	172	2064	560	282	776	333	336	749	
v/s Ratio Prot	0.04	c0.25		0.05	c0.30		c0.03	0.09		0.03	c0.13	
v/s Ratio Perm			0.16			0.07			0.01	0.08		
v/c Ratio	0.39	0.61	0.38	0.55	0.71	0.16	0.39	0.42	0.04	0.38	0.58	
Uniform Delay, d1	51.2	27.7	24.5	51.3	28.8	21.6	52.1	40.0	36.6	31.2	41.5	
Progression Factor	0.94	0.92	0.90	1.16	0.87	0.79	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.1	0.2	3.4	2.0	0.6	0.9	0.8	0.1	0.7	2.0	
Delay (s)	48.1	25.8	22.2	62.8	27.0	17.7	53.0	40.7	36.7	31.9	43.5	
Level of Service	D	C	C	E	C	B	D	D	D	C	D	
Approach Delay (s)		26.4			28.1			43.0			40.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	19	1184	15	14	1683	11	4	2	1	4	1
Future Volume (vph)	9	19	1184	15	14	1683	11	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1704	4916	1443	1703	4916	1383		1727	1481		1599
Flt Permitted		0.10	1.00	1.00	0.19	1.00	1.00		0.79	1.00		0.88
Satd. Flow (perm)		181	4916	1443	344	4916	1383		1415	1481		1432
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	10	21	1316	17	16	1870	12	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	6
Lane Group Flow (vph)	0	31	1316	14	16	1870	10	0	12	0	0	7
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		151	4121	1209	288	4121	1159		103	108		105
v/s Ratio Prot			0.27			c0.38						
v/s Ratio Perm		0.17		0.01	0.05		0.01		c0.01	0.00		0.00
v/c Ratio		0.21	0.32	0.01	0.06	0.45	0.01		0.12	0.00		0.06
Uniform Delay, d1		1.9	2.1	1.6	1.6	2.5	1.6		52.0	51.5		51.8
Progression Factor		2.34	2.42	4.37	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		3.0	0.2	0.0	0.4	0.4	0.0		0.5	0.0		0.2
Delay (s)		7.4	5.4	6.9	2.0	2.9	1.6		52.5	51.5		52.0
Level of Service		A	A	A	A	A	A		D	D		D
Approach Delay (s)			5.4			2.9			52.3			52.0
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1074	17	50	1524	154	111	195	13	95	71	18
Future Volume (veh/h)	65	1074	17	50	1524	154	111	195	13	95	71	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.98		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	1167	18	54	1657	167	121	212	14	103	77	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	3194	948	355	3194	937	174	266	17	188	132	31
Arrive On Green	1.00	1.00	1.00	0.63	0.63	0.63	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	256	5106	1515	471	5106	1497	486	968	61	520	483	111
Grp Volume(v), veh/h	71	1167	18	54	1657	167	347	0	0	200	0	0
Grp Sat Flow(s),veh/h/ln	256	1702	1515	471	1702	1497	1516	0	0	1114	0	0
Q Serve(g_s), s	17.2	0.0	0.0	5.8	21.6	5.6	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	38.8	0.0	0.0	5.8	21.6	5.6	26.3	0.0	0.0	20.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.51		0.10
Lane Grp Cap(c), veh/h	174	3194	948	355	3194	937	456	0	0	351	0	0
V/C Ratio(X)	0.41	0.37	0.02	0.15	0.52	0.18	0.76	0.00	0.00	0.57	0.00	0.00
Avail Cap(c_a), veh/h	174	3194	948	355	3194	937	650	0	0	519	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.30	0.30	0.30	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.6	0.0	0.0	9.5	12.5	9.5	41.1	0.0	0.0	38.3	0.0	0.0
Incr Delay (d2), s/veh	7.0	0.3	0.0	0.3	0.2	0.1	3.3	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1	0.0	0.6	7.5	1.7	10.2	0.0	0.0	5.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	0.3	0.0	9.8	12.6	9.6	44.4	0.0	0.0	39.7	0.0	0.0
LnGrp LOS	B	A	A	A	B	A	D	A	A	D	A	A
Approach Vol, veh/h		1256			1878			347			200	
Approach Delay, s/veh		1.0			12.3			44.4			39.7	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.6		39.4		80.6		39.4				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		23.6		22.1		40.8		28.3				
Green Ext Time (p_c), s		27.1		1.3		13.2		2.2				

Intersection Summary		
HCM 6th Ctrl Delay		13.0
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	869	113	114	1210	43	158	1591	55	45	795	273
Future Volume (veh/h)	260	869	113	114	1210	43	158	1591	55	45	795	273
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	299	999	130	127	1344	0	180	1808	62	47	837	287
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1314	398	301	1587		289	1869	64	182	1313	447
Arrive On Green	0.03	0.08	0.08	0.12	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1544	1781	5106	1585	1781	5064	173	1781	3730	1270
Grp Volume(v), veh/h	299	999	130	127	1344	0	180	1215	655	47	763	361
Grp Sat Flow(s),veh/h/ln	1728	1702	1544	1781	1702	1585	1781	1702	1834	1781	1702	1596
Q Serve(g_s), s	8.6	23.0	7.4	2.0	29.5	0.0	7.6	42.0	42.1	1.9	22.5	22.7
Cycle Q Clear(g_c), s	8.6	23.0	7.4	2.0	29.5	0.0	7.6	42.0	42.1	1.9	22.5	22.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.80
Lane Grp Cap(c), veh/h	408	1314	398	301	1587		289	1256	677	182	1198	562
V/C Ratio(X)	0.73	0.76	0.33	0.42	0.85		0.62	0.97	0.97	0.26	0.64	0.64
Avail Cap(c_a), veh/h	408	1413	427	301	1587		290	1257	677	213	1257	589
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	51.3	27.3	45.9	38.7	0.0	24.6	37.1	37.2	28.2	32.5	32.6
Incr Delay (d2), s/veh	6.2	3.9	2.0	0.9	5.8	0.0	4.1	18.1	27.1	0.7	1.0	2.2
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	4.2	10.9	3.1	3.4	12.8	0.0	3.4	19.9	23.1	0.8	9.1	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	55.2	29.3	46.9	44.5	0.0	28.7	55.3	64.2	29.0	33.5	34.8
LnGrp LOS	D	E	C	D	D		C	E	E	C	C	C
Approach Vol, veh/h		1428			1471			2050			1171	
Approach Delay, s/veh		51.3			44.7			55.8			33.7	
Approach LOS		D			D			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	51.0	20.4	36.7	14.0	48.9	14.0	43.1
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	13.9	44.1	4.0	25.0	9.6	24.7	10.6	31.5
Green Ext Time (p_c), s	0.0	0.2	0.1	5.9	0.0	7.3	0.0	3.1

Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	8	21	907	758	33
Future Volume (veh/h)	14	8	21	907	758	33
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	9	23	986	1516	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	77	68	343	2846	2508	1059
Arrive On Green	0.04	0.04	0.05	0.80	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	3647	3705	1524
Grp Volume(v), veh/h	15	9	23	986	1516	66
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1524
Q Serve(g_s), s	0.5	0.4	0.2	5.1	14.9	0.9
Cycle Q Clear(g_c), s	0.5	0.4	0.2	5.1	14.9	0.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	77	68	343	2846	2508	1059
V/C Ratio(X)	0.20	0.13	0.07	0.35	0.60	0.06
Avail Cap(c_a), veh/h	763	679	710	3153	3203	1353
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	31.1	31.0	4.1	1.8	5.4	3.3
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.2	0.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.3	0.0	0.5	3.6	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.5	31.3	4.1	2.0	5.9	3.3
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	24			1009	1582	
Approach Delay, s/veh	31.4			2.0	5.8	
Approach LOS	C			A	A	

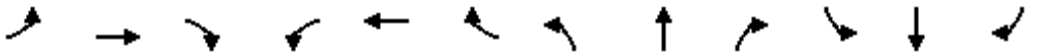
Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	59.2		8.1	7.1	52.0
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	7.1		2.5	2.2	16.9
Green Ext Time (p_c), s	18.2		0.0	0.0	29.9

Intersection Summary	
HCM 6th Ctrl Delay	4.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	294	16	66	438	199	21	264	74	135	182	41
Future Volume (vph)	71	294	16	66	438	199	21	264	74	135	182	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1716		1711	1801	1531	1711	1801	1412
Flt Permitted	0.23	1.00	1.00	0.51	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	418	1801	1397	927	1716		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	320	17	72	476	216	23	287	80	147	198	45
RTOR Reduction (vph)	0	0	8	0	12	0	0	0	51	0	0	0
Lane Group Flow (vph)	77	320	9	72	680	0	23	287	29	147	198	45
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	66.2	66.2	66.2	66.2	66.2		6.0	25.3	25.3	13.2	32.5	32.5
Effective Green, g (s)	66.2	66.2	66.2	66.2	66.2		6.0	25.3	25.3	13.2	32.5	32.5
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55		0.05	0.21	0.21	0.11	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	230	993	770	511	946		85	379	322	188	487	382
v/s Ratio Prot		0.18			c0.40		0.01	c0.16		c0.09	0.11	
v/s Ratio Perm	0.18		0.01	0.08					0.02			0.03
v/c Ratio	0.33	0.32	0.01	0.14	0.72		0.27	0.76	0.09	0.78	0.41	0.12
Uniform Delay, d1	14.8	14.7	12.1	13.1	20.0		54.9	44.5	38.1	52.0	35.8	33.0
Progression Factor	1.00	1.00	1.00	0.60	0.70		1.00	1.00	1.00	1.50	0.70	0.53
Incremental Delay, d2	3.9	0.9	0.0	0.5	4.4		0.6	7.5	0.0	1.8	0.0	0.0
Delay (s)	18.7	15.5	12.2	8.4	18.4		55.5	52.0	38.1	80.0	25.3	17.4
Level of Service	B	B	B	A	B		E	D	D	E	C	B
Approach Delay (s)		16.0			17.5			49.3			45.0	
Approach LOS		B			B			D			D	

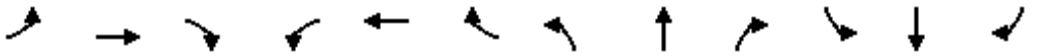
Intersection Summary			
HCM 2000 Control Delay	29.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	389	133	101	625	64	65
Future Volume (vph)	389	133	101	625	64	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.47	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	845	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	423	145	110	679	70	71
RTOR Reduction (vph)	0	19	0	0	0	60
Lane Group Flow (vph)	423	126	110	679	70	11
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.8	88.8	101.8	101.8	8.9	17.9
Effective Green, g (s)	88.8	88.8	101.8	101.8	8.9	17.9
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.07	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1332	1132	781	1527	126	279
v/s Ratio Prot	0.23		0.01	c0.38		0.00
v/s Ratio Perm		0.08	0.11		c0.04	0.00
v/c Ratio	0.32	0.11	0.14	0.44	0.56	0.04
Uniform Delay, d1	5.3	4.4	1.8	2.2	53.6	43.7
Progression Factor	1.66	2.31	0.48	0.45	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.0	0.7	3.0	0.0
Delay (s)	9.4	10.4	0.9	1.7	56.6	43.7
Level of Service	A	B	A	A	E	D
Approach Delay (s)	9.6			1.6	50.1	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	264	106	98	500	152	132	822	68	72	593	87
Future Volume (vph)	86	264	106	98	500	152	132	822	68	72	593	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1483	1711	3421	1303
Flt Permitted	0.20	1.00	1.00	0.48	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	353	1801	1280	861	1801	1531	1711	3421	1483	1711	3421	1303
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	287	115	107	543	165	143	893	74	78	645	95
RTOR Reduction (vph)	0	0	71	0	0	0	0	0	47	0	0	65
Lane Group Flow (vph)	93	287	44	107	543	165	143	893	27	78	645	30
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	55.3	45.7	45.7	55.3	45.7	45.7	14.2	34.4	44.0	8.9	28.9	38.5
Effective Green, g (s)	55.3	45.7	45.7	55.3	45.7	45.7	14.2	34.4	44.0	8.9	28.9	38.5
Actuated g/C Ratio	0.46	0.38	0.38	0.46	0.38	0.38	0.12	0.29	0.37	0.07	0.24	0.32
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	271	685	487	464	685	583	202	980	543	126	823	418
v/s Ratio Prot	c0.03	0.16		0.02	c0.30		0.08	c0.26	0.00	0.05	c0.19	0.01
v/s Ratio Perm	0.13		0.03	0.09		0.11			0.01			0.02
v/c Ratio	0.34	0.42	0.09	0.23	0.79	0.28	0.71	0.91	0.05	0.62	0.78	0.07
Uniform Delay, d1	21.7	27.4	23.8	18.9	32.9	25.8	50.9	41.3	24.5	53.9	42.6	28.3
Progression Factor	0.53	0.71	1.00	0.82	0.87	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	1.8	0.4	0.0	4.5	0.6	8.9	13.0	0.0	6.2	5.7	0.0
Delay (s)	11.7	21.2	24.2	15.6	33.0	22.4	59.8	54.3	24.5	60.1	48.3	28.4
Level of Service	B	C	C	B	C	C	E	D	C	E	D	C
Approach Delay (s)		20.1			28.6			53.0			47.1	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	40.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	348	25	14	705	30	38	0	9	0	0	9
Future Volume (veh/h)	58	348	25	14	705	30	38	0	9	0	0	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	378	27	28	1410	33	41	0	10	0	0	10
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	1495	1267	907	1624	1376	127	0	76	0	89	76
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	370	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Grp Volume(v), veh/h	63	378	27	28	1410	33	41	0	10	0	0	10
Grp Sat Flow(s),veh/h/ln	370	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Q Serve(g_s), s	10.9	0.0	0.0	0.3	48.5	0.3	3.4	0.0	0.7	0.0	0.0	0.7
Cycle Q Clear(g_c), s	51.1	0.0	0.0	0.3	48.5	0.3	3.4	0.0	0.7	0.0	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	232	1495	1267	907	1624	1376	127	0	76	0	89	76
V/C Ratio(X)	0.27	0.25	0.02	0.03	0.87	0.02	0.32	0.00	0.13	0.00	0.00	0.13
Avail Cap(c_a), veh/h	232	1495	1267	1066	1624	1376	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	10.7	0.0	0.0	1.4	4.2	1.1	56.1	0.0	54.8	0.0	0.0	54.8
Incr Delay (d2), s/veh	2.7	0.4	0.0	0.0	6.6	0.0	0.5	0.0	0.3	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	0.0	0.1	10.4	0.1	1.2	0.0	0.3	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.4	0.0	1.4	10.8	1.1	56.6	0.0	55.1	0.0	0.0	55.1
LnGrp LOS	B	A	A	A	B	A	E	A	E	A	A	E
Approach Vol, veh/h		468			1471			51			10	
Approach Delay, s/veh		2.1			10.4			56.3			55.1	
Approach LOS		A			B			E			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		109.5		10.5	8.2	101.2		10.5				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		50.5		5.4	2.3	53.1		2.7				
Green Ext Time (p_c), s		21.9		0.1	0.0	1.2		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			9.9									
HCM 6th LOS			A									

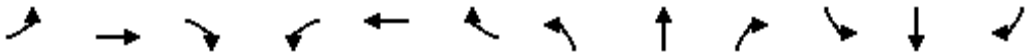
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	346	18	6	707	49	8
Future Volume (vph)	346	18	6	707	49	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1693	
Flt Permitted	1.00	1.00	0.54	1.00	0.96	
Satd. Flow (perm)	1801	1531	969	1801	1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	20	7	768	53	9
RTOR Reduction (vph)	0	3	0	0	7	0
Lane Group Flow (vph)	376	17	7	768	55	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	102.7	102.7	102.7	102.7	8.0	
Effective Green, g (s)	102.7	102.7	102.7	102.7	8.0	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.07	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1541	1310	829	1541	112	
v/s Ratio Prot	0.21			c0.43		
v/s Ratio Perm		0.01	0.01		c0.03	
v/c Ratio	0.24	0.01	0.01	0.50	0.50	
Uniform Delay, d1	1.6	1.3	1.3	2.2	54.1	
Progression Factor	2.52	3.84	1.00	1.00	1.00	
Incremental Delay, d2	0.4	0.0	0.0	1.2	1.3	
Delay (s)	4.3	4.9	1.3	3.3	55.3	
Level of Service	A	A	A	A	E	
Approach Delay (s)	4.4			3.3	55.3	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	353	24	6	815	14	52	1	20	55	22	103
Future Volume (vph)	16	353	24	6	815	14	52	1	20	55	22	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.92	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.98	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1637	
Flt Permitted		0.94	1.00		1.00	1.00		0.41			0.87	
Satd. Flow (perm)		1688	1531		1795	1531		717			1447	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	384	26	7	886	15	57	1	22	60	24	112
RTOR Reduction (vph)	0	0	9	0	0	5	0	12	0	0	45	0
Lane Group Flow (vph)	0	401	17	0	893	10	0	68	0	0	151	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		76.3	76.3		76.3	76.3		13.5			16.7	
Effective Green, g (s)		76.3	76.3		76.3	76.3		13.5			16.7	
Actuated g/C Ratio		0.64	0.64		0.64	0.64		0.11			0.14	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		1073	973		1141	973		80			201	
v/s Ratio Prot												
v/s Ratio Perm		0.24	0.01		c0.50	0.01		c0.09			c0.10	
v/c Ratio		0.37	0.02		0.78	0.01		0.84			0.75	
Uniform Delay, d1		10.4	8.0		15.8	8.0		52.2			49.7	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		1.0	0.0		5.4	0.0		50.6			13.1	
Delay (s)		11.4	8.1		21.2	8.0		102.8			62.8	
Level of Service		B	A		C	A		F			E	
Approach Delay (s)		11.2			21.0			102.8			62.8	
Approach LOS		B			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	205	13	683	678	29	15	858	410	170	528	30
Future Volume (veh/h)	40	205	13	683	678	29	15	858	410	170	528	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	223	0	742	737	0	16	933	446	185	574	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	973		357	1270		403	1509	818	241	1837	105
Arrive On Green	0.19	0.19	0.00	0.10	0.36	0.00	0.42	0.42	0.42	0.07	0.54	0.54
Sat Flow, veh/h	713	5274	0	3456	3647	0	808	3554	1540	3456	3410	196
Grp Volume(v), veh/h	43	223	0	742	737	0	16	933	446	185	299	308
Grp Sat Flow(s),veh/h/ln	713	1702	0	1728	1777	0	808	1777	1540	1728	1777	1829
Q Serve(g_s), s	6.2	4.4	0.0	12.4	20.2	0.0	1.4	24.6	23.1	6.3	11.2	11.2
Cycle Q Clear(g_c), s	6.4	4.4	0.0	12.4	20.2	0.0	1.4	24.6	23.1	6.3	11.2	11.2
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	195	973		357	1270		403	1509	818	241	957	985
V/C Ratio(X)	0.22	0.23		2.08	0.58		0.04	0.62	0.55	0.77	0.31	0.31
Avail Cap(c_a), veh/h	283	1604		357	1270		403	1509	818	279	957	985
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	41.1	0.0	53.8	31.3	0.0	20.3	26.9	18.8	54.9	15.4	15.4
Incr Delay (d2), s/veh	2.3	0.5	0.0	494.6	0.7	0.0	0.2	1.9	2.6	10.5	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.9	0.0	29.9	8.6	0.0	0.3	10.6	8.5	3.1	4.6	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	41.6	0.0	548.4	32.0	0.0	20.4	28.8	21.4	65.4	16.2	16.2
LnGrp LOS	D	D		F	C		C	C	C	E	B	B
Approach Vol, veh/h		266			1479			1395			792	
Approach Delay, s/veh		42.0			291.1			26.4			27.7	
Approach LOS		D			F			C			C	

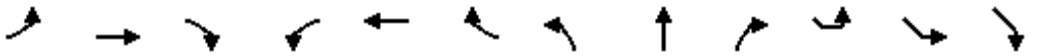
Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	29.2	13.7	57.2		49.2		70.8
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	8.4	8.3	26.6		22.2		13.2
Green Ext Time (p_c), s	0.0	4.3	0.1	5.7		4.7		5.6

Intersection Summary	
HCM 6th Ctrl Delay	127.3
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



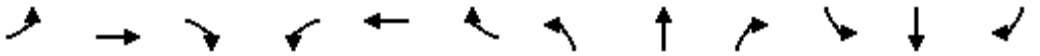
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	189	1309	63	142	1461	166	102	302	220	150	409	187
Future Volume (vph)	189	1309	63	142	1461	166	102	302	220	150	409	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1157	1711	4916	1409	1711	3421	1250	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1157	1711	4916	1409	1711	3421	1250	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	203	1408	68	149	1538	175	109	321	234	167	454	208
RTOR Reduction (vph)	0	0	44	0	0	94	0	0	67	139	0	0
Lane Group Flow (vph)	203	1408	24	149	1538	81	109	321	167	28	454	208
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.4	42.9	42.9	13.1	47.6	47.6	24.8	24.8	39.9	12.2	12.2	12.2
Effective Green, g (s)	8.4	42.9	42.9	13.1	47.6	47.6	24.8	24.8	39.9	12.2	12.2	12.2
Actuated g/C Ratio	0.07	0.36	0.36	0.11	0.40	0.40	0.21	0.21	0.33	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	232	1757	413	186	1950	558	353	707	415	173	173	155
v/s Ratio Prot	0.06	0.29		c0.09	c0.31		0.06	c0.09	0.04	0.02	c0.27	0.14
v/s Ratio Perm			0.02			0.06			0.09			
v/c Ratio	0.88	0.80	0.06	0.80	0.79	0.15	0.31	0.45	0.40	0.16	2.62	1.34
Uniform Delay, d1	55.3	34.7	25.3	52.2	31.8	23.2	40.3	41.7	30.9	49.2	53.9	53.9
Progression Factor	1.00	1.00	1.00	1.31	0.64	0.74	0.82	0.83	0.90	1.00	1.00	1.00
Incremental Delay, d2	27.8	4.0	0.3	18.0	2.9	0.5	0.2	0.1	0.2	0.6	747.4	190.7
Delay (s)	83.1	38.7	25.6	86.1	23.3	17.7	33.3	34.9	28.1	49.8	801.3	244.6
Level of Service	F	D	C	F	C	B	C	C	C	D	F	F
Approach Delay (s)		43.5			27.8			32.2			375.1	
Approach LOS		D			C			C			F	

Intersection Summary			
HCM 2000 Control Delay	108.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	304
Future Volume (vph)	304
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1462
Flt Permitted	1.00
Satd. Flow (perm)	1462
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	338
RTOR Reduction (vph)	258
Lane Group Flow (vph)	80
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	20.6
Effective Green, g (s)	20.6
Actuated g/C Ratio	0.17
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	250
v/s Ratio Prot	0.02
v/s Ratio Perm	0.03
v/c Ratio	0.32
Uniform Delay, d1	43.6
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	43.8
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	1529	337	182	1304	78	210	304	208	111	426	40
Future Volume (vph)	70	1529	337	182	1304	78	210	304	208	111	426	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1448	1711	4916	1334	3385	3490	1501	1711	3370	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.65	1.00	
Satd. Flow (perm)	3319	4916	1448	1711	4916	1334	3385	3490	1501	1172	3370	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	75	1644	362	192	1373	82	111	160	109	129	495	47
RTOR Reduction (vph)	0	0	144	0	0	48	0	0	83	0	7	0
Lane Group Flow (vph)	75	1644	218	192	1373	34	111	160	26	129	535	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	9.6	37.7	37.7	21.7	49.8	49.8	10.0	29.0	29.0	39.0	29.0	
Effective Green, g (s)	9.6	37.7	37.7	21.7	49.8	49.8	10.0	29.0	29.0	39.0	29.0	
Actuated g/C Ratio	0.08	0.31	0.31	0.18	0.41	0.41	0.08	0.24	0.24	0.32	0.24	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	265	1544	454	309	2040	553	282	843	362	425	814	
v/s Ratio Prot	0.02	c0.33		0.11	c0.28		c0.03	0.05		0.03	c0.16	
v/s Ratio Perm			0.15			0.03			0.02	0.07		
v/c Ratio	0.28	1.06	0.48	0.62	0.67	0.06	0.39	0.19	0.07	0.30	0.66	
Uniform Delay, d1	52.0	41.1	33.2	45.4	28.5	21.1	52.1	36.2	35.1	29.6	41.0	
Progression Factor	0.85	0.85	0.60	1.17	0.99	6.38	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	30.8	0.3	3.6	1.7	0.2	0.9	0.2	0.2	0.4	2.9	
Delay (s)	44.0	65.9	20.4	56.9	29.8	134.6	53.0	36.4	35.3	30.0	43.9	
Level of Service	D	E	C	E	C	F	D	D	D	C	D	
Approach Delay (s)		57.2			38.2			40.9			41.2	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	6	16	1810	39	113	1292	10	21	1	15	114	5
Future Volume (vph)	6	16	1810	39	113	1292	10	21	1	15	114	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		0.99	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1700	4916	1442	1711	4916	1380		1704	1486		1657
Flt Permitted		0.16	1.00	1.00	0.07	1.00	1.00		0.70	1.00		0.75
Satd. Flow (perm)		278	4916	1442	133	4916	1380		1247	1486		1293
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	7	18	2011	43	126	1436	11	40	2	28	139	6
RTOR Reduction (vph)	0	0	0	7	0	0	3	0	0	12	0	11
Lane Group Flow (vph)	0	25	2011	36	126	1436	8	0	42	16	0	174
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		87.0	87.0	87.0	87.0	87.0	87.0		22.4	22.4		22.4
Effective Green, g (s)		87.0	87.0	87.0	87.0	87.0	87.0		22.4	22.4		22.4
Actuated g/C Ratio		0.72	0.72	0.72	0.72	0.72	0.72		0.19	0.19		0.19
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		201	3564	1045	96	3564	1000		232	277		241
v/s Ratio Prot			0.41			0.29						
v/s Ratio Perm		0.09		0.02	c0.95		0.01		0.03	0.01		c0.13
v/c Ratio		0.12	0.56	0.03	1.31	0.40	0.01		0.18	0.06		0.72
Uniform Delay, d1		5.0	7.7	4.7	16.5	6.4	4.6		41.1	40.1		45.9
Progression Factor		2.11	1.80	2.74	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		1.1	0.6	0.1	196.9	0.3	0.0		0.4	0.1		10.3
Delay (s)		11.7	14.4	12.8	213.4	6.8	4.6		41.5	40.2		56.2
Level of Service		B	B	B	F	A	A		D	D		E
Approach Delay (s)			14.4			23.3			41.0			56.2
Approach LOS			B			C			D			E

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

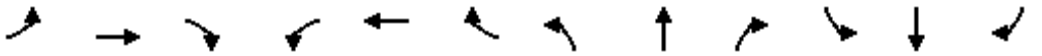
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	33
Future Volume (vph)	33
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	40
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	1796	63	79	1174	36	26	32	12	174	108	4
Future Volume (veh/h)	66	1796	63	79	1174	36	26	32	12	174	108	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	1952	68	86	1276	39	28	35	13	189	117	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	3274	972	149	3274	961	170	203	68	289	149	5
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	417	5106	1516	211	5106	1499	497	785	264	930	576	20
Grp Volume(v), veh/h	72	1952	68	86	1276	39	76	0	0	310	0	0
Grp Sat Flow(s),veh/h/ln	417	1702	1516	211	1702	1499	1546	0	0	1525	0	0
Q Serve(g_s), s	12.0	26.6	2.0	47.9	14.3	1.2	0.0	0.0	0.0	18.4	0.0	0.0
Cycle Q Clear(g_c), s	26.3	26.6	2.0	74.5	14.3	1.2	4.0	0.0	0.0	22.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.37		0.17	0.61		0.01
Lane Grp Cap(c), veh/h	278	3274	972	149	3274	961	441	0	0	443	0	0
V/C Ratio(X)	0.26	0.60	0.07	0.58	0.39	0.04	0.17	0.00	0.00	0.70	0.00	0.00
Avail Cap(c_a), veh/h	278	3274	972	149	3274	961	651	0	0	647	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.82	0.82	0.82	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.6	12.5	8.1	34.1	10.3	7.9	34.4	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.8	0.1	12.8	0.3	0.1	0.2	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	9.3	0.7	2.9	5.0	0.4	1.8	0.0	0.0	8.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	13.3	8.2	47.0	10.6	8.0	34.6	0.0	0.0	43.1	0.0	0.0
LnGrp LOS	B	B	A	D	B	A	C	A	A	D	A	A
Approach Vol, veh/h		2092			1401			76			310	
Approach Delay, s/veh		13.3			12.7			34.6			43.1	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.5		37.5		82.5		37.5				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		76.5		24.5		28.6		6.0				
Green Ext Time (p_c), s		0.0		1.9		26.8		0.5				

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

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	1444	108	111	796	11	65	793	46	120	908	360
Future Volume (veh/h)	290	1444	108	111	796	11	65	793	46	120	908	360
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	333	1660	124	123	884	0	74	901	52	126	956	379
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	434	1413	428	292	1729		231	1603	92	308	1178	467
Arrive On Green	0.03	0.09	0.09	0.13	0.34	0.00	0.08	0.33	0.33	0.08	0.33	0.33
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4930	284	1781	3559	1409
Grp Volume(v), veh/h	333	1660	124	123	884	0	74	621	332	126	914	421
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1810	1781	1702	1564
Q Serve(g_s), s	9.4	33.2	7.0	3.4	16.6	0.0	3.1	18.1	18.2	5.4	29.5	29.5
Cycle Q Clear(g_c), s	9.4	33.2	7.0	3.4	16.6	0.0	3.1	18.1	18.2	5.4	29.5	29.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.90
Lane Grp Cap(c), veh/h	434	1413	428	292	1729		231	1107	589	308	1127	518
V/C Ratio(X)	0.77	1.18	0.29	0.42	0.51		0.32	0.56	0.56	0.41	0.81	0.81
Avail Cap(c_a), veh/h	434	1413	428	292	1729		243	1257	668	311	1257	577
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	54.5	26.6	46.0	31.7	0.0	26.7	33.4	33.5	24.4	36.7	36.7
Incr Delay (d2), s/veh	6.0	84.6	1.2	1.0	1.1	0.0	0.8	1.0	1.8	0.9	3.8	7.9
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	4.5	26.2	2.8	3.3	6.8	0.0	1.3	7.4	8.1	2.3	12.4	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	139.1	27.8	47.0	32.8	0.0	27.4	34.4	35.3	25.3	40.5	44.6
LnGrp LOS	D	F	C	D	C		C	C	D	C	D	D
Approach Vol, veh/h		2117			1007			1027			1461	
Approach Delay, s/veh		118.0			34.6			34.2			40.4	
Approach LOS		F			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	45.7	21.4	39.0	13.2	46.4	14.0	46.4
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.4	20.2	5.4	35.2	5.1	31.5	11.4	18.6
Green Ext Time (p_c), s	0.1	11.3	0.1	0.0	0.0	7.0	0.0	8.0

Intersection Summary	
HCM 6th Ctrl Delay	67.5
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

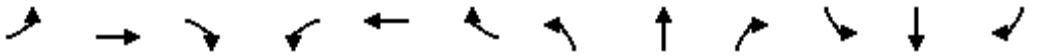
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	31	35	691	930	43
Future Volume (veh/h)	14	31	35	691	930	43
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	34	38	751	1860	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	118	105	285	2858	2494	1053
Arrive On Green	0.07	0.07	0.06	0.80	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	3647	3705	1524
Grp Volume(v), veh/h	15	34	38	751	1860	86
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1524
Q Serve(g_s), s	0.6	1.7	0.4	4.2	26.6	1.5
Cycle Q Clear(g_c), s	0.6	1.7	0.4	4.2	26.6	1.5
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	118	105	285	2858	2494	1053
V/C Ratio(X)	0.13	0.32	0.13	0.26	0.75	0.08
Avail Cap(c_a), veh/h	634	565	546	2858	2666	1125
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	35.6	36.0	8.1	2.0	8.0	4.1
Incr Delay (d2), s/veh	0.2	0.7	0.1	0.1	1.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.5	0.2	0.7	7.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.7	36.7	8.2	2.1	9.4	4.2
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	49			789	1946	
Approach Delay, s/veh	36.4			2.4	9.2	
Approach LOS	D			A	A	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	70.3		10.5	9.2	61.1
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	6.2		3.7	2.4	28.6
Green Ext Time (p_c), s	12.4		0.1	0.0	27.3

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	494	35	56	222	148	17	201	59	132	284	65
Future Volume (vph)	247	494	35	56	222	148	17	201	59	132	284	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.94	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1613	1801	1397	1711	1692		1711	1801	1531	1711	1801	1412
Flt Permitted	0.45	1.00	1.00	0.35	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	771	1801	1397	635	1692		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	537	38	61	241	161	18	218	64	143	309	71
RTOR Reduction (vph)	0	0	16	0	17	0	0	0	52	0	0	0
Lane Group Flow (vph)	268	537	22	61	385	0	18	218	12	143	309	71
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	68.3	68.3	68.3	68.3	68.3		4.0	23.2	23.2	13.2	32.4	32.4
Effective Green, g (s)	68.3	68.3	68.3	68.3	68.3		4.0	23.2	23.2	13.2	32.4	32.4
Actuated g/C Ratio	0.57	0.57	0.57	0.57	0.57		0.03	0.19	0.19	0.11	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	438	1025	795	361	963		57	348	295	188	486	381
v/s Ratio Prot		0.30			0.23		0.01	0.12		c0.08	c0.17	
v/s Ratio Perm	c0.35		0.02	0.10					0.01			0.05
v/c Ratio	0.61	0.52	0.03	0.17	0.40		0.32	0.63	0.04	0.76	0.64	0.19
Uniform Delay, d1	17.1	15.9	11.3	12.3	14.4		56.7	44.4	39.4	51.9	38.6	33.7
Progression Factor	1.00	1.00	1.00	1.49	1.61		1.00	1.00	1.00	0.95	0.89	0.95
Incremental Delay, d2	6.3	1.9	0.1	1.0	1.2		1.2	2.5	0.0	9.5	1.2	0.1
Delay (s)	23.3	17.8	11.4	19.4	24.4		57.8	47.0	39.4	58.6	35.7	32.0
Level of Service	C	B	B	B	C		E	D	D	E	D	C
Approach Delay (s)		19.3			23.8			46.0			41.5	
Approach LOS		B			C			D			D	

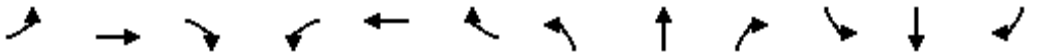
Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	610	78	87	356	70	97
Future Volume (vph)	610	78	87	356	70	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.34	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	607	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	663	85	95	387	76	105
RTOR Reduction (vph)	0	7	0	0	0	89
Lane Group Flow (vph)	663	78	95	387	76	16
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.6	88.6	101.6	101.6	9.1	18.1
Effective Green, g (s)	88.6	88.6	101.6	101.6	9.1	18.1
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1329	1130	596	1524	129	281
v/s Ratio Prot	c0.37		0.01	c0.21		0.00
v/s Ratio Perm		0.05	0.12		c0.04	0.01
v/c Ratio	0.50	0.07	0.16	0.25	0.59	0.06
Uniform Delay, d1	6.5	4.3	2.9	1.8	53.6	43.6
Progression Factor	0.82	0.82	0.66	0.76	1.00	1.00
Incremental Delay, d2	1.2	0.1	0.0	0.4	4.4	0.0
Delay (s)	6.5	3.7	1.9	1.7	58.0	43.7
Level of Service	A	A	A	A	E	D
Approach Delay (s)	6.2			1.8	49.7	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	389	171	170	279	126	128	464	252	88	746	102
Future Volume (vph)	56	389	171	170	279	126	128	464	252	88	746	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.86
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1709	1801	1280	1711	1801	1531	1711	3421	1489	1711	3421	1323
Flt Permitted	0.43	1.00	1.00	0.28	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	778	1801	1280	510	1801	1531	1711	3421	1489	1711	3421	1323
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	423	186	185	303	137	139	504	274	96	811	111
RTOR Reduction (vph)	0	0	122	0	0	0	0	0	99	0	0	69
Lane Group Flow (vph)	61	423	64	185	303	137	139	504	175	96	811	42
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	55.1	41.0	41.0	55.1	41.0	41.0	12.1	32.1	46.2	11.4	31.2	45.3
Effective Green, g (s)	55.1	41.0	41.0	55.1	41.0	41.0	12.1	32.1	46.2	11.4	31.2	45.3
Actuated g/C Ratio	0.46	0.34	0.34	0.46	0.34	0.34	0.10	0.27	0.39	0.10	0.26	0.38
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	466	615	437	375	615	523	172	915	573	162	889	499
v/s Ratio Prot	0.02	c0.23		c0.06	0.17		c0.08	0.15	0.04	0.06	c0.24	0.01
v/s Ratio Perm	0.04		0.05	0.17		0.09			0.08			0.02
v/c Ratio	0.13	0.69	0.15	0.49	0.49	0.26	0.81	0.55	0.31	0.59	0.91	0.08
Uniform Delay, d1	18.7	34.0	27.4	21.5	31.3	28.6	52.8	37.8	25.7	52.1	43.1	24.0
Progression Factor	0.62	0.81	1.86	0.86	0.92	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.0	5.6	0.6	0.3	2.3	1.0	22.4	1.2	0.1	3.8	14.1	0.0
Delay (s)	11.7	33.0	51.6	18.6	31.0	26.8	75.2	39.0	25.8	55.9	57.2	24.0
Level of Service	B	C	D	B	C	C	E	D	C	E	E	C
Approach Delay (s)		36.2			26.4			40.5			53.5	
Approach LOS		D			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	723	17	23	500	2	34	0	21	7	0	54
Future Volume (veh/h)	4	723	17	23	500	2	34	0	21	7	0	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	786	18	46	1000	2	37	0	23	8	0	59
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	377	1339	1134	627	1487	1260	62	0	192	62	0	192
Arrive On Green	1.00	1.00	1.00	0.05	0.79	0.79	0.12	0.00	0.12	0.12	0.00	0.12
Sat Flow, veh/h	562	1870	1585	1781	1870	1585	16	0	1585	16	0	1585
Grp Volume(v), veh/h	4	786	18	46	1000	2	37	0	23	8	0	59
Grp Sat Flow(s),veh/h/ln	562	1870	1585	1781	1870	1585	16	0	1585	16	0	1585
Q Serve(g_s), s	0.2	0.0	0.0	0.7	28.3	0.0	0.2	0.0	1.6	0.2	0.0	4.1
Cycle Q Clear(g_c), s	18.4	0.0	0.0	0.7	28.3	0.0	14.5	0.0	1.6	14.5	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	377	1339	1134	627	1487	1260	62	0	192	62	0	192
V/C Ratio(X)	0.01	0.59	0.02	0.07	0.67	0.00	0.60	0.00	0.12	0.13	0.00	0.31
Avail Cap(c_a), veh/h	377	1339	1134	768	1487	1260	293	0	465	301	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	2.0	0.0	0.0	3.0	5.4	2.5	60.0	0.0	47.0	60.0	0.0	48.1
Incr Delay (d2), s/veh	0.0	1.5	0.0	0.0	2.4	0.0	3.4	0.0	0.1	0.3	0.0	0.3
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	0.0	0.6	0.0	0.2	9.1	0.0	1.2	0.0	0.6	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	2.0	1.5	0.0	3.1	7.9	2.5	63.4	0.0	47.1	60.3	0.0	48.5
LnGrp LOS	A	A	A	A	A	A	E	A	D	E	A	D
Approach Vol, veh/h		808			1048			60			67	
Approach Delay, s/veh		1.5			7.7			57.2			49.9	
Approach LOS		A			A			E			D	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		100.5		19.5	9.5	91.0		19.5				
Change Period (Y+Rc), s		5.3		* 4.8	4.0	5.3		* 4.8				
Max Green Setting (Gmax), s		74.7		* 35	15.0	55.7		* 35				
Max Q Clear Time (g_c+I1), s		30.3		16.5	2.7	20.4		16.5				
Green Ext Time (p_c), s		21.7		0.1	0.0	13.4		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		8.1
HCM 6th LOS		A

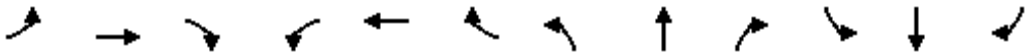
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	723	32	16	499	32	13
Future Volume (vph)	723	32	16	499	32	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	1801	1531	1711	1801	1672	
Flt Permitted	1.00	1.00	0.34	1.00	0.97	
Satd. Flow (perm)	1801	1531	613	1801	1672	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	786	35	17	542	35	14
RTOR Reduction (vph)	0	2	0	0	13	0
Lane Group Flow (vph)	786	33	17	542	36	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	527	1548	104	
v/s Ratio Prot	c0.44			0.30		
v/s Ratio Perm		0.02	0.03		c0.02	
v/c Ratio	0.51	0.02	0.03	0.35	0.34	
Uniform Delay, d1	2.1	1.2	1.2	1.7	53.9	
Progression Factor	0.29	0.35	1.00	1.00	1.00	
Incremental Delay, d2	1.1	0.0	0.1	0.6	0.7	
Delay (s)	1.7	0.4	1.3	2.3	54.6	
Level of Service	A	A	A	A	D	
Approach Delay (s)	1.6			2.3	54.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	824	8	9	319	11	36	1	25	178	10	140
Future Volume (vph)	25	824	8	9	319	11	36	1	25	178	10	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1798	1531		1655			1652	
Flt Permitted		0.98	1.00		0.55	1.00		0.69			0.79	
Satd. Flow (perm)		1768	1531		996	1531		1166			1348	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	896	9	10	347	12	39	1	27	193	11	152
RTOR Reduction (vph)	0	0	5	0	0	6	0	23	0	0	19	0
Lane Group Flow (vph)	0	923	4	0	357	6	0	44	0	0	337	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		56.7	56.7		56.7	56.7		9.0			40.8	
Effective Green, g (s)		56.7	56.7		56.7	56.7		9.0			40.8	
Actuated g/C Ratio		0.47	0.47		0.47	0.47		0.08			0.34	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		835	723		470	723		87			458	
v/s Ratio Prot												
v/s Ratio Perm		c0.52	0.00		0.36	0.00		c0.04			c0.25	
v/c Ratio		1.11	0.01		0.76	0.01		0.50			0.74	
Uniform Delay, d1		31.6	16.7		26.0	16.8		53.4			34.9	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		64.1	0.0		11.0	0.0		1.7			5.2	
Delay (s)		95.8	16.8		37.0	16.8		55.0			40.1	
Level of Service		F	B		D	B		E			D	
Approach Delay (s)		95.0			36.4			55.0			40.1	
Approach LOS		F			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	69.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	683	24	383	342	18	9	546	677	286	807	49
Future Volume (veh/h)	55	683	24	383	342	18	9	546	677	286	807	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	742	0	416	372	0	10	593	736	311	877	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	1318		357	1510		232	1230	695	279	1601	97
Arrive On Green	0.26	0.26	0.00	0.10	0.42	0.00	0.35	0.35	0.35	0.08	0.47	0.47
Sat Flow, veh/h	997	5274	0	3456	3647	0	599	3554	1534	3456	3398	205
Grp Volume(v), veh/h	60	742	0	416	372	0	10	593	736	311	459	471
Grp Sat Flow(s),veh/h/ln	997	1702	0	1728	1777	0	599	1777	1534	1728	1777	1827
Q Serve(g_s), s	5.7	15.1	0.0	12.4	8.1	0.0	1.5	15.7	41.5	9.7	22.1	22.1
Cycle Q Clear(g_c), s	5.7	15.1	0.0	12.4	8.1	0.0	8.5	15.7	41.5	9.7	22.1	22.1
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	317	1318		357	1510		232	1230	695	279	837	860
V/C Ratio(X)	0.19	0.56		1.16	0.25		0.04	0.48	1.06	1.11	0.55	0.55
Avail Cap(c_a), veh/h	373	1604		357	1510		232	1230	695	279	837	860
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	38.6	0.0	53.8	22.2	0.0	31.0	30.8	33.2	55.2	22.6	22.6
Incr Delay (d2), s/veh	1.2	1.5	0.0	100.5	0.1	0.0	0.3	1.4	50.9	87.8	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.4	0.0	10.3	3.4	0.0	0.2	6.9	29.1	7.6	9.6	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	40.2	0.0	154.3	22.3	0.0	31.4	32.2	84.1	142.9	25.2	25.1
LnGrp LOS	D	D		F	C		C	C	F	F	C	C
Approach Vol, veh/h		802			788			1339			1241	
Approach Delay, s/veh		39.9			92.0			60.7			54.7	
Approach LOS		D			F			E			D	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	37.3	15.0	47.7		57.3		62.7
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	17.1	11.7	43.5		10.1		24.1
Green Ext Time (p_c), s	0.0	11.1	0.0	0.0		2.6		8.8

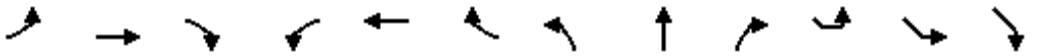
Intersection Summary	
HCM 6th Ctrl Delay	60.8
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

FUTURE PLUS PROJECT
PROJECT ALTERNATIVE



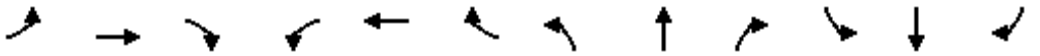
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	341	1368	97	107	1565	208	128	379	82	387	571	402
Future Volume (vph)	341	1368	97	107	1565	208	128	379	82	387	571	402
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.79	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1158	1711	4916	1404	1711	3421	1217	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1158	1711	4916	1404	1711	3421	1217	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	367	1471	104	113	1647	219	136	403	87	430	634	447
RTOR Reduction (vph)	0	0	64	0	0	104	0	0	60	211	0	0
Lane Group Flow (vph)	367	1471	40	113	1647	115	136	403	27	219	634	447
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.8	45.9	45.9	9.3	39.4	39.4	25.8	25.8	37.1	12.0	12.0	12.0
Effective Green, g (s)	15.8	45.9	45.9	9.3	39.4	39.4	25.8	25.8	37.1	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.38	0.38	0.08	0.33	0.33	0.22	0.22	0.31	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	437	1880	442	132	1614	460	367	735	376	171	171	153
v/s Ratio Prot	c0.11	c0.30		0.07	c0.34		0.08	c0.12	0.01	0.13	c0.37	0.29
v/s Ratio Perm			0.03			0.08			0.02			
v/c Ratio	0.84	0.78	0.09	0.86	1.02	0.25	0.37	0.55	0.07	1.28	3.71	2.92
Uniform Delay, d1	50.9	32.7	23.7	54.7	40.3	29.5	40.2	41.9	29.3	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.30	0.63	0.69	1.32	1.31	1.12	1.00	1.00	1.00
Incremental Delay, d2	12.7	3.3	0.4	29.9	24.6	1.0	0.1	0.3	0.0	164.3	1232.7	882.2
Delay (s)	63.6	36.0	24.1	100.9	50.0	21.3	53.2	55.4	32.8	218.3	1286.7	936.2
Level of Service	E	D	C	F	D	C	D	E	C	F	F	F
Approach Delay (s)		40.6			49.8			51.8			677.0	
Approach LOS		D			D			D			F	

Intersection Summary			
HCM 2000 Control Delay	239.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	104.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	443
Future Volume (vph)	443
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	492
RTOR Reduction (vph)	211
Lane Group Flow (vph)	281
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.8
Effective Green, g (s)	27.8
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	345
v/s Ratio Prot	0.11
v/s Ratio Perm	0.08
v/c Ratio	0.81
Uniform Delay, d1	43.6
Progression Factor	1.00
Incremental Delay, d2	13.0
Delay (s)	56.6
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	1206	443	115	1493	157	232	683	117	114	381	53
Future Volume (vph)	124	1206	443	115	1493	157	232	683	117	114	381	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1450	1711	4916	1333	3385	3490	1501	1711	3349	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.45	1.00	
Satd. Flow (perm)	3319	4916	1450	1711	4916	1333	3385	3490	1501	809	3349	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	133	1297	476	121	1572	165	122	359	62	133	443	62
RTOR Reduction (vph)	0	0	201	0	0	74	0	0	48	0	11	0
Lane Group Flow (vph)	133	1297	275	121	1572	91	122	359	14	133	494	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	11.6	46.8	46.8	13.6	48.8	48.8	10.0	28.0	28.0	38.0	28.0	
Effective Green, g (s)	11.6	46.8	46.8	13.6	48.8	48.8	10.0	28.0	28.0	38.0	28.0	
Actuated g/C Ratio	0.10	0.39	0.39	0.11	0.41	0.41	0.08	0.23	0.23	0.32	0.23	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	320	1917	565	193	1999	542	282	814	350	331	781	
v/s Ratio Prot	0.04	c0.26		0.07	c0.32		c0.04	0.10		0.03	c0.15	
v/s Ratio Perm			0.19			0.07			0.01	0.09		
v/c Ratio	0.42	0.68	0.49	0.63	0.79	0.17	0.43	0.44	0.04	0.40	0.63	
Uniform Delay, d1	51.0	30.3	27.5	50.8	31.1	22.7	52.3	39.3	35.6	30.5	41.4	
Progression Factor	0.90	0.85	0.74	1.16	0.94	1.01	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.2	0.3	6.0	3.1	0.6	1.1	0.8	0.1	0.8	2.6	
Delay (s)	46.2	26.0	20.6	64.9	32.2	23.6	53.4	40.1	35.7	31.3	44.0	
Level of Service	D	C	C	E	C	C	D	D	D	C	D	
Approach Delay (s)		26.1			33.6			42.6			41.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	9	20	1245	15	14	1812	11	4	2	1	4	1
Future Volume (vph)	9	20	1245	15	14	1812	11	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.93
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1706	4916	1443	1703	4916	1383		1727	1481		1599
Flt Permitted		0.09	1.00	1.00	0.18	1.00	1.00		0.79	1.00		0.88
Satd. Flow (perm)		153	4916	1443	319	4916	1383		1415	1481		1432
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	10	22	1383	17	16	2013	12	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	5
Lane Group Flow (vph)	0	32	1383	14	16	2013	10	0	12	0	0	8
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		128	4121	1209	267	4121	1159		103	108		105
v/s Ratio Prot			0.28			c0.41						
v/s Ratio Perm		0.21		0.01	0.05		0.01		c0.01	0.00		0.01
v/c Ratio		0.25	0.34	0.01	0.06	0.49	0.01		0.12	0.00		0.08
Uniform Delay, d1		2.0	2.2	1.6	1.7	2.7	1.6		52.0	51.5		51.8
Progression Factor		2.56	2.62	4.52	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		4.5	0.2	0.0	0.4	0.4	0.0		0.5	0.0		0.3
Delay (s)		9.6	5.9	7.2	2.1	3.1	1.6		52.5	51.5		52.2
Level of Service		A	A	A	A	A	A		D	D		D
Approach Delay (s)			6.0			3.1			52.3			52.2
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	4.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

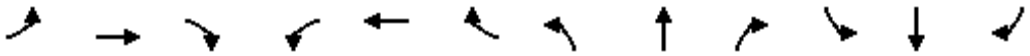
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	7
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1137	18	52	1648	159	115	201	13	98	73	19
Future Volume (veh/h)	67	1137	18	52	1648	159	115	201	13	98	73	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	1236	20	57	1791	173	125	218	14	107	79	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	3174	942	334	3174	931	176	267	16	189	132	31
Arrive On Green	1.00	1.00	1.00	0.62	0.62	0.62	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	223	5106	1515	440	5106	1497	488	961	59	516	473	112
Grp Volume(v), veh/h	73	1236	20	57	1791	173	357	0	0	207	0	0
Grp Sat Flow(s),veh/h/ln	223	1702	1515	440	1702	1497	1508	0	0	1101	0	0
Q Serve(g_s), s	27.3	0.0	0.0	6.8	24.5	5.9	6.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	51.8	0.0	0.0	6.8	24.5	5.9	27.3	0.0	0.0	21.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.52		0.10
Lane Grp Cap(c), veh/h	153	3174	942	334	3174	931	460	0	0	352	0	0
V/C Ratio(X)	0.48	0.39	0.02	0.17	0.56	0.19	0.78	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	153	3174	942	334	3174	931	648	0	0	514	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.11	0.11	0.11	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.5	0.0	0.0	9.9	13.2	9.7	41.1	0.0	0.0	38.2	0.0	0.0
Incr Delay (d2), s/veh	10.3	0.4	0.0	0.1	0.1	0.0	3.9	0.0	0.0	1.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.1	0.0	0.6	8.5	1.8	10.6	0.0	0.0	5.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.8	0.4	0.0	10.0	13.3	9.8	45.0	0.0	0.0	39.8	0.0	0.0
LnGrp LOS	B	A	A	A	B	A	D	A	A	D	A	A
Approach Vol, veh/h		1329			2021			357			207	
Approach Delay, s/veh		1.4			12.9			45.0			39.8	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.1		39.9		80.1		39.9				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		26.5		23.1		53.8		29.3				
Green Ext Time (p_c), s		27.1		1.3		5.5		2.2				

Intersection Summary		
HCM 6th Ctrl Delay		13.3
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	268	926	117	177	1324	44	163	1654	57	46	859	282
Future Volume (veh/h)	268	926	117	177	1324	44	163	1654	57	46	859	282
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	308	1064	134	197	1471	0	185	1880	65	48	904	297
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1346	407	284	1584		277	1869	65	178	1330	435
Arrive On Green	0.03	0.09	0.09	0.11	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1545	1781	5106	1585	1781	5063	175	1781	3773	1235
Grp Volume(v), veh/h	308	1064	134	197	1471	0	185	1263	682	48	815	386
Grp Sat Flow(s),veh/h/ln	1728	1702	1545	1781	1702	1585	1781	1702	1834	1781	1702	1604
Q Serve(g_s), s	8.8	24.5	7.6	7.2	33.5	0.0	7.8	44.3	44.3	1.9	24.5	24.6
Cycle Q Clear(g_c), s	8.8	24.5	7.6	7.2	33.5	0.0	7.8	44.3	44.3	1.9	24.5	24.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		0.77
Lane Grp Cap(c), veh/h	408	1346	407	284	1584		277	1257	677	178	1200	565
V/C Ratio(X)	0.75	0.79	0.33	0.69	0.93		0.67	1.01	1.01	0.27	0.68	0.68
Avail Cap(c_a), veh/h	408	1413	427	284	1584		277	1257	677	208	1257	592
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	51.5	27.0	48.5	40.1	0.0	25.5	37.8	37.9	28.3	33.1	33.1
Incr Delay (d2), s/veh	7.2	4.4	2.0	7.0	11.0	0.0	6.0	26.6	36.4	0.8	1.4	3.0
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	4.3	11.7	3.1	6.0	15.2	0.0	3.7	22.2	25.8	0.8	10.0	9.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.5	55.9	28.9	55.5	51.1	0.0	31.6	64.5	74.3	29.1	34.5	36.2
LnGrp LOS	D	E	C	E	D		C	F	F	C	C	D
Approach Vol, veh/h		1506			1668			2130			1249	
Approach Delay, s/veh		52.0			51.7			64.8			34.8	
Approach LOS		D			D			E			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	51.0	19.6	37.4	14.0	49.0	14.0	43.0
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	10.8	46.3	9.2	26.5	9.8	26.6	10.8	35.5
Green Ext Time (p_c), s	0.0	0.0	0.0	5.1	0.0	7.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	8	22	1005	886	34
Future Volume (veh/h)	14	8	22	1005	886	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	9	24	1092	1772	68
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	75	67	292	2903	2584	1092
Arrive On Green	0.04	0.04	0.05	0.82	0.72	0.72
Sat Flow, veh/h	1781	1585	1781	3647	3705	1526
Grp Volume(v), veh/h	15	9	24	1092	1772	68
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1526
Q Serve(g_s), s	0.6	0.4	0.2	6.0	20.4	1.0
Cycle Q Clear(g_c), s	0.6	0.4	0.2	6.0	20.4	1.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	75	67	292	2903	2584	1092
V/C Ratio(X)	0.20	0.14	0.08	0.38	0.69	0.06
Avail Cap(c_a), veh/h	690	614	615	2903	2898	1225
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	34.4	34.3	5.4	1.8	5.9	3.1
Incr Delay (d2), s/veh	0.5	0.3	0.0	0.2	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.4	0.1	0.6	5.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.9	34.7	5.4	2.0	6.8	3.2
LnGrp LOS	C	C	A	A	A	A
Approach Vol, veh/h	24			1116	1840	
Approach Delay, s/veh	34.8			2.0	6.7	
Approach LOS	C			A	A	

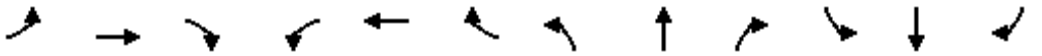
Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	66.0		8.3	7.5	58.5
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	8.0		2.6	2.2	22.4
Green Ext Time (p_c), s	21.0		0.0	0.0	30.8

Intersection Summary	
HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	328	54	119	500	238	33	303	92	193	282	87
Future Volume (vph)	99	328	54	119	500	238	33	303	92	193	282	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1713		1711	1801	1531	1711	1801	1412
Flt Permitted	0.14	1.00	1.00	0.48	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	261	1801	1397	863	1713		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	357	59	129	543	259	36	329	100	210	307	95
RTOR Reduction (vph)	0	0	27	0	13	0	0	0	49	0	0	0
Lane Group Flow (vph)	108	357	32	129	789	0	36	329	51	210	307	95
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	64.7	64.7	64.7	64.7	64.7		6.0	27.4	27.4	12.6	34.0	34.0
Effective Green, g (s)	64.7	64.7	64.7	64.7	64.7		6.0	27.4	27.4	12.6	34.0	34.0
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.05	0.23	0.23	0.10	0.28	0.28
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	140	971	753	465	923		85	411	349	179	510	400
v/s Ratio Prot		0.20			c0.46		0.02	c0.18		c0.12	0.17	
v/s Ratio Perm	0.41		0.02	0.15					0.03			0.07
v/c Ratio	0.77	0.37	0.04	0.28	0.85		0.42	0.80	0.15	1.17	0.60	0.24
Uniform Delay, d1	21.8	15.9	13.0	15.0	23.6		55.3	43.7	37.0	53.7	37.2	33.0
Progression Factor	1.00	1.00	1.00	0.75	0.87		1.00	1.00	1.00	1.59	0.46	0.42
Incremental Delay, d2	32.9	1.1	0.1	1.3	8.7		1.2	10.1	0.1	83.6	0.1	0.0
Delay (s)	54.7	17.0	13.1	12.4	29.2		56.6	53.8	37.0	169.2	17.0	13.9
Level of Service	D	B	B	B	C		E	D	D	F	B	B
Approach Delay (s)		24.3			26.9			50.4			68.7	
Approach LOS		C			C			D			E	

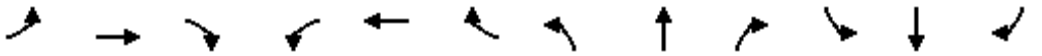
Intersection Summary			
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	97.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	460	137	104	790	66	67
Future Volume (vph)	460	137	104	790	66	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.42	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	765	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	500	149	113	859	72	73
RTOR Reduction (vph)	0	16	0	0	0	62
Lane Group Flow (vph)	500	133	113	859	72	11
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.8	88.8	101.8	101.8	8.9	17.9
Effective Green, g (s)	88.8	88.8	101.8	101.8	8.9	17.9
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.07	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1332	1132	719	1527	126	279
v/s Ratio Prot	0.28		0.01	c0.48		0.00
v/s Ratio Perm		0.09	0.12		c0.04	0.00
v/c Ratio	0.38	0.12	0.16	0.56	0.57	0.04
Uniform Delay, d1	5.6	4.4	2.0	2.6	53.7	43.7
Progression Factor	1.90	2.48	0.61	1.25	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.0	0.7	3.8	0.0
Delay (s)	11.3	11.2	1.3	4.0	57.6	43.7
Level of Service	B	B	A	A	E	D
Approach Delay (s)	11.3			3.7	50.6	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	311	111	101	630	168	137	884	70	72	688	120
Future Volume (vph)	107	311	111	101	630	168	137	884	70	72	688	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1280	1711	1801	1531	1711	3421	1484	1711	3421	1303
Flt Permitted	0.09	1.00	1.00	0.40	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	166	1801	1280	727	1801	1531	1711	3421	1484	1711	3421	1303
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	338	121	110	685	183	149	961	76	78	748	130
RTOR Reduction (vph)	0	0	77	0	0	0	0	0	47	0	0	86
Lane Group Flow (vph)	116	338	44	110	685	183	149	961	29	78	748	44
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	53.4	43.3	43.3	53.4	43.3	43.3	14.4	36.3	46.4	8.9	30.6	40.7
Effective Green, g (s)	53.4	43.3	43.3	53.4	43.3	43.3	14.4	36.3	46.4	8.9	30.6	40.7
Actuated g/C Ratio	0.44	0.36	0.36	0.44	0.36	0.36	0.12	0.30	0.39	0.07	0.26	0.34
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	203	649	461	406	649	552	205	1034	573	126	872	441
v/s Ratio Prot	c0.05	0.19		0.02	c0.38		0.09	c0.28	0.00	0.05	c0.22	0.01
v/s Ratio Perm	0.20		0.03	0.10		0.12			0.02			0.03
v/c Ratio	0.57	0.52	0.09	0.27	1.06	0.33	0.73	0.93	0.05	0.62	0.86	0.10
Uniform Delay, d1	26.7	30.2	25.4	20.4	38.4	27.8	50.9	40.6	23.0	53.9	42.6	27.1
Progression Factor	0.95	0.58	1.00	0.87	0.90	0.88	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.3	2.8	0.4	0.0	29.0	0.1	10.3	14.5	0.0	6.2	9.2	0.0
Delay (s)	27.6	20.4	25.8	17.7	63.7	24.8	61.2	55.1	23.0	60.1	51.8	27.2
Level of Service	C	C	C	B	E	C	E	E	C	E	D	C
Approach Delay (s)		23.0			51.2			53.8			49.1	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	390	31	19	850	31	42	0	10	0	0	9
Future Volume (veh/h)	60	390	31	19	850	31	42	0	10	0	0	9
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	424	34	38	1700	34	46	0	11	0	0	10
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1479	1254	873	1620	1373	130	0	79	0	93	79
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	279	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Grp Volume(v), veh/h	65	424	34	38	1700	34	46	0	11	0	0	10
Grp Sat Flow(s),veh/h/ln	279	1870	1585	1781	1870	1585	1405	0	1585	0	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	103.9	0.4	3.9	0.0	0.8	0.0	0.0	0.7
Cycle Q Clear(g_c), s	94.9	0.0	0.0	0.4	103.9	0.4	3.9	0.0	0.8	0.0	0.0	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	60	1479	1254	873	1620	1373	130	0	79	0	93	79
V/C Ratio(X)	1.08	0.29	0.03	0.04	1.05	0.02	0.35	0.00	0.14	0.00	0.00	0.13
Avail Cap(c_a), veh/h	60	1479	1254	1021	1620	1373	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	0.0	1.4	8.0	1.1	56.0	0.0	54.6	0.0	0.0	54.5
Incr Delay (d2), s/veh	134.4	0.4	0.0	0.0	36.5	0.0	0.6	0.0	0.3	0.0	0.0	0.3
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	4.0	0.2	0.0	0.1	32.9	0.1	1.4	0.0	0.3	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	181.8	0.4	0.0	1.4	44.6	1.1	56.6	0.0	54.9	0.0	0.0	54.8
LnGrp LOS	F	A	A	A	F	A	E	A	D	A	A	D
Approach Vol, veh/h		523			1772			57			10	
Approach Delay, s/veh		23.0			42.8			56.3			54.8	
Approach LOS		C			D			E			D	

Timer - Assigned Phs	2	4	5	6	8
Phs Duration (G+Y+Rc), s	109.2	10.8	9.0	100.2	10.8
Change Period (Y+Rc), s	5.3	* 4.8	4.0	5.3	* 4.8
Max Green Setting (Gmax), s	74.7	* 35	15.0	55.7	* 35
Max Q Clear Time (g_c+I1), s	105.9	5.9	2.4	96.9	2.7
Green Ext Time (p_c), s	0.0	0.1	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

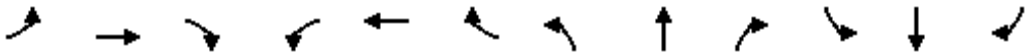
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	397	11	1	845	63	13
Future Volume (vph)	397	11	1	845	63	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1689	
Flt Permitted	1.00	1.00	0.51	1.00	0.96	
Satd. Flow (perm)	1801	1531	916	1801	1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	432	12	1	918	68	14
RTOR Reduction (vph)	0	2	0	0	7	0
Lane Group Flow (vph)	432	10	1	918	75	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	101.8	101.8	101.8	101.8	8.9	
Effective Green, g (s)	101.8	101.8	101.8	101.8	8.9	
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.07	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1527	1298	777	1527	125	
v/s Ratio Prot	0.24			c0.51		
v/s Ratio Perm		0.01	0.00		c0.04	
v/c Ratio	0.28	0.01	0.00	0.60	0.60	
Uniform Delay, d1	1.8	1.4	1.4	2.8	53.8	
Progression Factor	1.43	0.99	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	1.8	5.0	
Delay (s)	3.1	1.4	1.4	4.6	58.8	
Level of Service	A	A	A	A	E	
Approach Delay (s)	3.0			4.6	58.8	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	406	25	6	952	14	54	1	21	57	23	106
Future Volume (vph)	17	406	25	6	952	14	54	1	21	57	23	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.92	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.98	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1637	
Flt Permitted		0.70	1.00		1.00	1.00		0.41			0.87	
Satd. Flow (perm)		1254	1531		1795	1531		715			1446	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	441	27	7	1035	15	59	1	23	62	25	115
RTOR Reduction (vph)	0	0	10	0	0	6	0	12	0	0	44	0
Lane Group Flow (vph)	0	459	17	0	1042	9	0	71	0	0	158	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		75.4	75.4		75.4	75.4		13.9			17.2	
Effective Green, g (s)		75.4	75.4		75.4	75.4		13.9			17.2	
Actuated g/C Ratio		0.63	0.63		0.63	0.63		0.12			0.14	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		787	961		1127	961		82			207	
v/s Ratio Prot												
v/s Ratio Perm		0.37	0.01		c0.58	0.01		c0.10			c0.11	
v/c Ratio		0.58	0.02		0.92	0.01		0.86			0.76	
Uniform Delay, d1		13.1	8.4		19.8	8.3		52.1			49.5	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		3.1	0.0		13.9	0.0		54.4			14.0	
Delay (s)		16.2	8.4		33.7	8.4		106.5			63.4	
Level of Service		B	A		C	A		F			E	
Approach Delay (s)		15.8			33.3			106.5			63.4	
Approach LOS		B			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	35.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	236	31	971	772	30	55	886	607	176	545	31
Future Volume (veh/h)	41	236	31	971	772	30	55	886	607	176	545	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	257	0	1055	839	0	60	963	660	191	592	34
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	179	1071		357	1338		380	1435	785	247	1771	102
Arrive On Green	0.21	0.21	0.00	0.10	0.38	0.00	0.40	0.40	0.40	0.07	0.52	0.52
Sat Flow, veh/h	650	5274	0	3456	3647	0	794	3554	1539	3456	3410	196
Grp Volume(v), veh/h	45	257	0	1055	839	0	60	963	660	191	308	318
Grp Sat Flow(s),veh/h/ln	650	1702	0	1728	1777	0	794	1777	1539	1728	1777	1829
Q Serve(g_s), s	7.3	5.0	0.0	12.4	23.1	0.0	5.9	26.6	44.4	6.5	12.1	12.1
Cycle Q Clear(g_c), s	10.4	5.0	0.0	12.4	23.1	0.0	5.9	26.6	44.4	6.5	12.1	12.1
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	179	1071		357	1338		380	1435	785	247	923	950
V/C Ratio(X)	0.25	0.24		2.95	0.63		0.16	0.67	0.84	0.77	0.33	0.33
Avail Cap(c_a), veh/h	247	1604		357	1338		380	1435	785	279	923	950
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	39.5	0.0	53.8	30.5	0.0	23.1	29.3	25.5	54.8	16.8	16.8
Incr Delay (d2), s/veh	2.9	0.5	0.0	887.1	1.0	0.0	0.9	2.5	10.5	11.3	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.1	0.0	49.3	9.9	0.0	1.2	11.6	17.7	3.2	5.1	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	39.9	0.0	940.9	31.5	0.0	24.0	31.8	36.1	66.1	17.7	17.7
LnGrp LOS	D	D		F	C		C	C	D	E	B	B
Approach Vol, veh/h		302			1894			1683			817	
Approach Delay, s/veh		40.8			538.0			33.2			29.0	
Approach LOS		D			F			C			C	

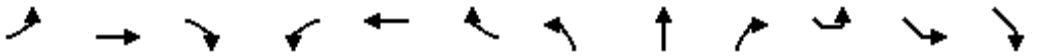
Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	31.5	13.9	54.7		51.5		68.5
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	12.4	8.5	46.4		25.1		14.1
Green Ext Time (p_c), s	0.0	4.8	0.1	0.0		4.8		5.8

Intersection Summary	
HCM 6th Ctrl Delay	236.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



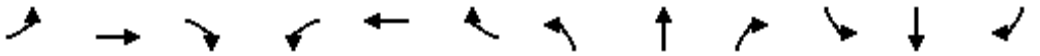
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	200	1390	102	181	1628	175	148	462	266	155	428	262
Future Volume (vph)	200	1390	102	181	1628	175	148	462	266	155	428	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1156	1711	4916	1408	1711	3421	1257	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1156	1711	4916	1408	1711	3421	1257	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	215	1495	110	191	1714	184	157	491	283	172	476	291
RTOR Reduction (vph)	0	0	74	0	0	97	0	0	63	140	0	0
Lane Group Flow (vph)	215	1495	36	191	1714	87	157	491	220	33	476	291
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	8.9	39.0	39.0	15.1	45.2	45.2	26.9	26.9	44.0	12.0	12.0	12.0
Effective Green, g (s)	8.9	39.0	39.0	15.1	45.2	45.2	26.9	26.9	44.0	12.0	12.0	12.0
Actuated g/C Ratio	0.07	0.32	0.32	0.13	0.38	0.38	0.22	0.22	0.37	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	246	1597	375	215	1851	530	383	766	460	171	171	153
v/s Ratio Prot	0.06	0.30		c0.11	c0.35		0.09	c0.14	0.06	0.02	c0.28	0.19
v/s Ratio Perm			0.03			0.06			0.11			
v/c Ratio	0.87	0.94	0.10	0.89	0.93	0.16	0.41	0.64	0.48	0.19	2.78	1.90
Uniform Delay, d1	55.0	39.3	28.2	51.6	35.8	24.9	39.8	42.2	29.2	49.5	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.33	0.66	0.78	0.90	0.89	0.67	1.00	1.00	1.00
Incremental Delay, d2	26.5	11.7	0.5	27.7	8.1	0.6	0.2	0.8	0.2	0.7	818.7	429.3
Delay (s)	81.5	51.0	28.7	96.2	31.8	19.9	36.0	38.4	19.7	50.3	872.7	483.3
Level of Service	F	D	C	F	C	B	D	D	B	D	F	F
Approach Delay (s)		53.3			36.7			32.3			451.2	
Approach LOS		D			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	128.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	314
Future Volume (vph)	314
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1465
Flt Permitted	1.00
Satd. Flow (perm)	1465
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	349
RTOR Reduction (vph)	206
Lane Group Flow (vph)	143
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	20.9
Effective Green, g (s)	20.9
Actuated g/C Ratio	0.17
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	255
v/s Ratio Prot	0.04
v/s Ratio Perm	0.06
v/c Ratio	0.56
Uniform Delay, d1	45.4
Progression Factor	1.00
Incremental Delay, d2	1.7
Delay (s)	47.1
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	1626	366	200	1374	81	265	433	237	114	457	53
Future Volume (vph)	89	1626	366	200	1374	81	265	433	237	114	457	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1448	1711	4916	1332	3385	3490	1501	1711	3360	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	
Satd. Flow (perm)	3319	4916	1448	1711	4916	1332	3385	3490	1501	1090	3360	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	96	1748	394	211	1446	85	139	228	125	133	531	62
RTOR Reduction (vph)	0	0	148	0	0	52	0	0	94	0	8	0
Lane Group Flow (vph)	96	1748	246	211	1446	33	139	228	31	133	585	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	12.0	37.6	37.6	20.7	46.3	46.3	10.0	30.1	30.1	40.1	30.1	
Effective Green, g (s)	12.0	37.6	37.6	20.7	46.3	46.3	10.0	30.1	30.1	40.1	30.1	
Actuated g/C Ratio	0.10	0.31	0.31	0.17	0.39	0.39	0.08	0.25	0.25	0.33	0.25	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	331	1540	453	295	1896	513	282	875	376	415	842	
v/s Ratio Prot	0.03	c0.36		0.12	c0.29		c0.04	0.07		0.03	c0.17	
v/s Ratio Perm			0.17			0.02			0.02	0.08		
v/c Ratio	0.29	1.14	0.54	0.72	0.76	0.06	0.49	0.26	0.08	0.32	0.69	
Uniform Delay, d1	50.1	41.2	34.1	46.9	32.1	23.2	52.6	36.0	34.4	28.8	40.8	
Progression Factor	0.82	0.79	0.53	1.29	0.93	5.64	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	61.7	0.4	7.5	2.8	0.2	1.4	0.3	0.2	0.4	3.5	
Delay (s)	41.2	94.1	18.6	68.2	32.6	131.2	53.9	36.4	34.6	29.3	44.3	
Level of Service	D	F	B	E	C	F	D	D	C	C	D	
Approach Delay (s)		78.6			41.7			40.9			41.5	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	57.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	88.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	6	17	1938	40	117	1377	10	22	1	15	118	5
Future Volume (vph)	6	17	1938	40	117	1377	10	22	1	15	118	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1702	4916	1442	1711	4916	1380		1704	1486		1657
Flt Permitted		0.14	1.00	1.00	0.06	1.00	1.00		0.70	1.00		0.75
Satd. Flow (perm)		247	4916	1442	109	4916	1380		1243	1486		1290
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	7	19	2153	44	130	1530	11	42	2	28	144	6
RTOR Reduction (vph)	0	0	0	8	0	0	3	0	0	12	0	11
Lane Group Flow (vph)	0	26	2153	36	130	1530	8	0	44	16	0	180
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		86.6	86.6	86.6	86.6	86.6	86.6		22.8	22.8		22.8
Effective Green, g (s)		86.6	86.6	86.6	86.6	86.6	86.6		22.8	22.8		22.8
Actuated g/C Ratio		0.72	0.72	0.72	0.72	0.72	0.72		0.19	0.19		0.19
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		178	3547	1040	78	3547	995		236	282		245
v/s Ratio Prot			0.44			0.31						
v/s Ratio Perm		0.11		0.03	c1.20		0.01		0.04	0.01		c0.14
v/c Ratio		0.15	0.61	0.04	1.67	0.43	0.01		0.19	0.06		0.74
Uniform Delay, d1		5.2	8.3	4.8	16.7	6.7	4.7		40.8	39.8		45.8
Progression Factor		2.15	1.88	2.82	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		1.5	0.7	0.1	349.5	0.4	0.0		0.4	0.1		10.9
Delay (s)		12.7	16.2	13.5	366.2	7.1	4.7		41.2	39.9		56.7
Level of Service		B	B	B	F	A	A		D	D		E
Approach Delay (s)			16.1			35.1			40.7			56.7
Approach LOS			B			D			D			E

Intersection Summary			
HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		

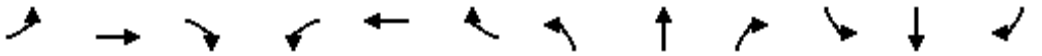
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	34
Future Volume (vph)	34
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	41
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	1922	65	82	1256	37	27	33	12	180	111	4
Future Volume (veh/h)	68	1922	65	82	1256	37	27	33	12	180	111	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	2089	71	89	1365	40	29	36	13	196	121	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	253	3254	966	131	3254	955	173	206	68	292	151	5
Arrive On Green	0.64	0.64	0.64	0.64	0.64	0.64	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	383	5106	1516	184	5106	1498	502	784	257	929	574	19
Grp Volume(v), veh/h	74	2089	71	89	1365	40	78	0	0	321	0	0
Grp Sat Flow(s),veh/h/ln	383	1702	1516	184	1702	1498	1543	0	0	1522	0	0
Q Serve(g_s), s	14.2	30.1	2.1	46.3	15.9	1.2	0.0	0.0	0.0	19.3	0.0	0.0
Cycle Q Clear(g_c), s	30.1	30.1	2.1	76.5	15.9	1.2	4.1	0.0	0.0	23.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.37		0.17	0.61		0.01
Lane Grp Cap(c), veh/h	253	3254	966	131	3254	955	447	0	0	448	0	0
V/C Ratio(X)	0.29	0.64	0.07	0.68	0.42	0.04	0.17	0.00	0.00	0.72	0.00	0.00
Avail Cap(c_a), veh/h	253	3254	966	131	3254	955	650	0	0	647	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.77	0.77	0.77	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.2	13.4	8.3	41.5	10.8	8.1	34.1	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	2.9	1.0	0.1	19.7	0.3	0.1	0.2	0.0	0.0	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	10.6	0.7	3.4	5.5	0.4	1.8	0.0	0.0	9.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	14.3	8.4	61.2	11.1	8.2	34.3	0.0	0.0	43.2	0.0	0.0
LnGrp LOS	C	B	A	E	B	A	C	A	A	D	A	A
Approach Vol, veh/h		2234			1494			78			321	
Approach Delay, s/veh		14.4			14.0			34.3			43.2	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.0		38.0		82.0		38.0				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		78.5		25.4		32.1		6.1				
Green Ext Time (p_c), s		0.0		2.0		25.2		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		16.9
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	299	1559	111	135	865	11	67	856	47	124	948	372
Future Volume (veh/h)	299	1559	111	135	865	11	67	856	47	124	948	372
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	344	1792	128	150	961	0	76	973	53	131	998	392
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	414	1413	428	279	1691		228	1645	89	299	1206	474
Arrive On Green	0.03	0.09	0.09	0.12	0.33	0.00	0.08	0.33	0.33	0.08	0.34	0.34
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4948	269	1781	3569	1401
Grp Volume(v), veh/h	344	1792	128	150	961	0	76	669	357	131	952	438
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1813	1781	1702	1567
Q Serve(g_s), s	9.7	33.2	7.3	5.3	18.6	0.0	3.2	19.6	19.7	5.6	30.8	30.9
Cycle Q Clear(g_c), s	9.7	33.2	7.3	5.3	18.6	0.0	3.2	19.6	19.7	5.6	30.8	30.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.89
Lane Grp Cap(c), veh/h	414	1413	428	279	1691		228	1131	603	299	1150	529
V/C Ratio(X)	0.83	1.27	0.30	0.54	0.57		0.33	0.59	0.59	0.44	0.83	0.83
Avail Cap(c_a), veh/h	414	1413	428	279	1691		240	1257	669	301	1257	578
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.66	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	54.5	26.6	47.4	33.1	0.0	26.6	33.3	33.3	24.3	36.5	36.5
Incr Delay (d2), s/veh	9.3	124.7	1.2	2.1	1.4	0.0	0.9	1.1	2.1	1.0	4.4	9.1
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	4.9	31.4	2.9	4.2	7.7	0.0	1.4	8.0	8.8	2.4	13.1	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	179.2	27.8	49.5	34.5	0.0	27.5	34.4	35.4	25.3	40.9	45.6
LnGrp LOS	D	F	C	D	C		C	C	D	C	D	D
Approach Vol, veh/h		2264			1111			1102			1521	
Approach Delay, s/veh		151.0			36.5			34.3			40.9	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	46.6	20.5	39.0	13.2	47.3	14.0	45.5
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.6	21.7	7.3	35.2	5.2	32.9	11.7	20.6
Green Ext Time (p_c), s	0.1	11.8	0.1	0.0	0.1	6.7	0.0	8.0

Intersection Summary	
HCM 6th Ctrl Delay	80.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	14	32	36	904	1006	44
Future Volume (veh/h)	14	32	36	904	1006	44
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	15	35	39	983	2012	88
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	117	105	262	2870	2510	1060
Arrive On Green	0.07	0.07	0.06	0.81	0.70	0.70
Sat Flow, veh/h	1781	1585	1781	3647	3705	1524
Grp Volume(v), veh/h	15	35	39	983	2012	88
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1524
Q Serve(g_s), s	0.7	1.8	0.4	6.1	31.9	1.6
Cycle Q Clear(g_c), s	0.7	1.8	0.4	6.1	31.9	1.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	117	105	262	2870	2510	1060
V/C Ratio(X)	0.13	0.33	0.15	0.34	0.80	0.08
Avail Cap(c_a), veh/h	618	550	512	2870	2595	1096
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	36.5	37.0	10.6	2.1	8.7	4.1
Incr Delay (d2), s/veh	0.2	0.7	0.1	0.2	2.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.6	0.3	1.0	9.7	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.7	37.7	10.7	2.3	10.9	4.2
LnGrp LOS	D	D	B	A	B	A
Approach Vol, veh/h	50			1022	2100	
Approach Delay, s/veh	37.4			2.6	10.6	
Approach LOS	D			A	B	

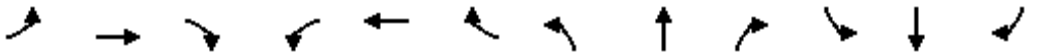
Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	72.4	10.7	9.3	63.0
Change Period (Y+Rc), s	5.3	* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7	* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	8.1	3.8	2.4	33.9
Green Ext Time (p_c), s	18.0	0.1	0.0	23.9

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	311	557	50	81	279	215	53	295	109	181	335	99
Future Volume (vph)	311	557	50	81	279	215	53	295	109	181	335	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.96	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1649	1801	1397	1711	1683		1711	1801	1531	1711	1801	1412
Flt Permitted	0.33	1.00	1.00	0.28	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	580	1801	1397	510	1683		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	338	605	54	88	303	234	58	321	118	197	364	108
RTOR Reduction (vph)	0	0	25	0	22	0	0	0	50	0	0	0
Lane Group Flow (vph)	338	605	29	88	515	0	58	321	68	197	364	108
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	64.4	64.4	64.4	64.4	64.4		8.4	25.7	25.7	14.6	31.9	31.9
Effective Green, g (s)	64.4	64.4	64.4	64.4	64.4		8.4	25.7	25.7	14.6	31.9	31.9
Actuated g/C Ratio	0.54	0.54	0.54	0.54	0.54		0.07	0.21	0.21	0.12	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	311	966	749	273	903		119	385	327	208	478	375
v/s Ratio Prot		0.34			0.31		0.03	0.18		c0.12	c0.20	
v/s Ratio Perm	c0.58		0.02	0.17					0.04			0.08
v/c Ratio	1.09	0.63	0.04	0.32	0.57		0.49	0.83	0.21	0.95	0.76	0.29
Uniform Delay, d1	27.8	19.4	13.2	15.6	18.6		53.7	45.1	38.8	52.3	40.5	35.0
Progression Factor	1.00	1.00	1.00	1.37	1.32		1.00	1.00	1.00	0.82	1.16	1.16
Incremental Delay, d2	76.2	3.1	0.1	3.0	2.5		1.1	13.7	0.1	9.0	0.6	0.0
Delay (s)	104.0	22.5	13.3	24.3	27.1		54.9	58.9	38.9	51.8	47.6	40.5
Level of Service	F	C	B	C	C		D	E	D	D	D	D
Approach Delay (s)		49.6			26.7			53.6			47.7	
Approach LOS		D			C			D			D	

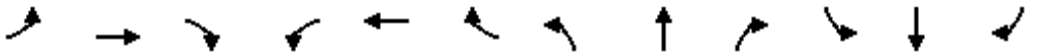
Intersection Summary			
HCM 2000 Control Delay	44.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	780	81	90	470	72	100
Future Volume (vph)	780	81	90	470	72	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.25	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	442	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	848	88	98	511	78	109
RTOR Reduction (vph)	0	6	0	0	0	92
Lane Group Flow (vph)	848	82	98	511	78	17
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.2	88.2	101.5	101.5	9.2	18.5
Effective Green, g (s)	88.2	88.2	101.5	101.5	9.2	18.5
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1323	1125	472	1523	131	287
v/s Ratio Prot	c0.47		0.02	c0.28		0.00
v/s Ratio Perm		0.05	0.16		c0.05	0.01
v/c Ratio	0.64	0.07	0.21	0.34	0.60	0.06
Uniform Delay, d1	8.0	4.5	5.1	2.0	53.6	43.3
Progression Factor	0.79	1.01	0.42	0.34	1.00	1.00
Incremental Delay, d2	1.9	0.1	0.1	0.5	4.8	0.0
Delay (s)	8.1	4.6	2.2	1.1	58.4	43.3
Level of Service	A	A	A	A	E	D
Approach Delay (s)	7.8			1.3	49.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	495	178	175	371	135	135	612	260	98	794	122
Future Volume (vph)	114	495	178	175	371	135	135	612	260	98	794	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.87
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1492	1711	3421	1334
Flt Permitted	0.28	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	501	1801	1280	194	1801	1531	1711	3421	1492	1711	3421	1334
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	538	193	190	403	147	147	665	283	107	863	133
RTOR Reduction (vph)	0	0	132	0	0	0	0	0	75	0	0	78
Lane Group Flow (vph)	124	538	61	190	403	147	147	665	208	107	863	55
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	54.8	38.0	38.0	54.8	38.0	38.0	12.2	32.2	49.0	11.6	31.4	48.2
Effective Green, g (s)	54.8	38.0	38.0	54.8	38.0	38.0	12.2	32.2	49.0	11.6	31.4	48.2
Actuated g/C Ratio	0.46	0.32	0.32	0.46	0.32	0.32	0.10	0.27	0.41	0.10	0.26	0.40
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	398	570	405	300	570	484	173	917	609	165	895	535
v/s Ratio Prot	0.04	c0.30		c0.09	0.22		c0.09	0.19	0.05	0.06	c0.25	0.01
v/s Ratio Perm	0.10		0.05	0.20		0.10			0.09			0.03
v/c Ratio	0.31	0.94	0.15	0.63	0.71	0.30	0.85	0.73	0.34	0.65	0.96	0.10
Uniform Delay, d1	20.6	40.0	29.4	24.5	36.1	31.0	53.0	39.9	24.4	52.2	43.7	22.4
Progression Factor	0.64	0.73	0.90	1.14	0.92	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	22.7	0.6	2.2	5.1	1.1	29.2	3.5	0.1	6.4	22.0	0.0
Delay (s)	13.3	51.8	27.0	30.3	38.4	29.5	82.2	43.4	24.5	58.7	65.7	22.4
Level of Service	B	D	C	C	D	C	F	D	C	E	E	C
Approach Delay (s)		40.6			34.5			43.7			59.8	
Approach LOS		D			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	45.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	844	20	26	596	2	42	0	26	7	0	56
Future Volume (veh/h)	4	844	20	26	596	2	42	0	26	7	0	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	917	22	52	1192	2	46	0	28	8	0	61
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	1281	1086	555	1433	1215	63	0	237	63	0	237
Arrive On Green	1.00	1.00	1.00	0.05	0.77	0.77	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	469	1870	1585	1781	1870	1585	18	0	1585	18	0	1585
Grp Volume(v), veh/h	4	917	22	52	1192	2	46	0	28	8	0	61
Grp Sat Flow(s),veh/h/ln	469	1870	1585	1781	1870	1585	18	0	1585	18	0	1585
Q Serve(g_s), s	0.5	0.0	0.0	0.9	49.3	0.0	0.2	0.0	1.8	0.2	0.0	4.1
Cycle Q Clear(g_c), s	38.9	0.0	0.0	0.9	49.3	0.0	17.9	0.0	1.8	17.9	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	231	1281	1086	555	1433	1215	63	0	237	63	0	237
V/C Ratio(X)	0.02	0.72	0.02	0.09	0.83	0.00	0.73	0.00	0.12	0.13	0.00	0.26
Avail Cap(c_a), veh/h	231	1281	1086	692	1433	1215	256	0	465	261	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.58	0.58	0.58	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	0.0	0.0	3.9	9.0	3.3	60.0	0.0	44.2	60.0	0.0	45.1
Incr Delay (d2), s/veh	0.1	2.0	0.0	0.0	5.8	0.0	6.1	0.0	0.1	0.3	0.0	0.2
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	0.0	0.7	0.0	0.3	17.7	0.0	1.5	0.0	0.7	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	2.0	0.0	3.9	14.8	3.3	66.1	0.0	44.3	60.3	0.0	45.3
LnGrp LOS	A	A	A	A	B	A	E	A	D	E	A	D
Approach Vol, veh/h		943			1246			74			69	
Approach Delay, s/veh		2.0			14.3			57.8			47.1	
Approach LOS		A			B			E			D	

Timer - Assigned Phs	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	97.0		23.0	9.8	87.3		23.0					
Change Period (Y+Rc), s	5.3		* 4.8	4.0	5.3		* 4.8					
Max Green Setting (Gmax), s	74.7		* 35	15.0	55.7		* 35					
Max Q Clear Time (g_c+I1), s	51.3		19.9	2.9	40.9		19.9					
Green Ext Time (p_c), s	18.1		0.1	0.0	9.6		0.1					

Intersection Summary		
HCM 6th Ctrl Delay		11.7
HCM 6th LOS		B

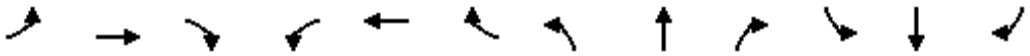
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	842	39	24	599	31	12
Future Volume (vph)	842	39	24	599	31	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	1801	1531	1711	1801	1673	
Flt Permitted	1.00	1.00	0.29	1.00	0.97	
Satd. Flow (perm)	1801	1531	519	1801	1673	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	915	42	26	651	34	13
RTOR Reduction (vph)	0	2	0	0	12	0
Lane Group Flow (vph)	915	40	26	651	35	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	446	1548	104	
v/s Ratio Prot	c0.51			0.36		
v/s Ratio Perm		0.03	0.05		c0.02	
v/c Ratio	0.59	0.03	0.06	0.42	0.33	
Uniform Delay, d1	2.4	1.2	1.2	1.8	53.9	
Progression Factor	0.38	0.23	1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.0	0.2	0.8	0.7	
Delay (s)	2.4	0.3	1.5	2.7	54.6	
Level of Service	A	A	A	A	D	
Approach Delay (s)	2.3			2.6	54.6	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	3.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	944	8	9	417	11	37	1	26	184	10	144
Future Volume (vph)	26	944	8	9	417	11	37	1	26	184	10	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1799	1531		1654			1652	
Flt Permitted		0.98	1.00		0.55	1.00		0.69			0.79	
Satd. Flow (perm)		1763	1531		992	1531		1168			1346	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	1026	9	10	453	12	40	1	28	200	11	157
RTOR Reduction (vph)	0	0	5	0	0	6	0	24	0	0	19	0
Lane Group Flow (vph)	0	1054	4	0	463	6	0	45	0	0	349	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		55.7	55.7		55.7	55.7		9.1			41.7	
Effective Green, g (s)		55.7	55.7		55.7	55.7		9.1			41.7	
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.08			0.35	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		818	710		460	710		88			467	
v/s Ratio Prot												
v/s Ratio Perm		c0.60	0.00		0.47	0.00		c0.04			c0.26	
v/c Ratio		1.29	0.01		1.01	0.01		0.51			0.75	
Uniform Delay, d1		32.1	17.3		32.1	17.3		53.3			34.5	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		139.0	0.0		43.6	0.0		2.1			5.7	
Delay (s)		171.2	17.3		75.7	17.3		55.4			40.2	
Level of Service		F	B		E	B		E			D	
Approach Delay (s)		169.9			74.3			55.4			40.2	
Approach LOS		F			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	118.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	774	50	624	393	19	55	564	962	295	833	51
Future Volume (veh/h)	57	774	50	624	393	19	55	564	962	295	833	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	62	841	0	678	427	0	60	613	1046	321	905	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	315	1373		357	1548		214	1191	678	279	1563	95
Arrive On Green	0.27	0.27	0.00	0.10	0.44	0.00	0.34	0.34	0.34	0.08	0.46	0.46
Sat Flow, veh/h	949	5274	0	3456	3647	0	582	3554	1533	3456	3397	206
Grp Volume(v), veh/h	62	841	0	678	427	0	60	613	1046	321	473	487
Grp Sat Flow(s),veh/h/ln	949	1702	0	1728	1777	0	582	1777	1533	1728	1777	1826
Q Serve(g_s), s	6.1	17.3	0.0	12.4	9.2	0.0	10.1	16.6	40.2	9.7	23.5	23.5
Cycle Q Clear(g_c), s	6.1	17.3	0.0	12.4	9.2	0.0	18.7	16.6	40.2	9.7	23.5	23.5
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	315	1373		357	1548		214	1191	678	279	818	841
V/C Ratio(X)	0.20	0.61		1.90	0.28		0.28	0.51	1.54	1.15	0.58	0.58
Avail Cap(c_a), veh/h	358	1604		357	1548		214	1191	678	279	818	841
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	38.4	0.0	53.8	21.7	0.0	36.2	32.0	33.8	55.2	23.8	23.8
Incr Delay (d2), s/veh	1.2	1.8	0.0	414.8	0.1	0.0	3.2	1.6	251.7	100.3	3.0	2.9
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	1.5	7.4	0.0	25.9	3.8	0.0	1.6	7.3	66.3	8.1	10.3	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	40.2	0.0	468.6	21.8	0.0	39.5	33.6	285.5	155.5	26.8	26.7
LnGrp LOS	D	D		F	C		D	C	F	F	C	C
Approach Vol, veh/h		903			1105			1719			1281	
Approach Delay, s/veh		39.9			295.9			187.1			59.0	
Approach LOS		D			F			F			E	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	38.6	15.0	46.4		58.6		61.4
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	19.3	11.7	42.2		11.2		25.5
Green Ext Time (p_c), s	0.0	11.4	0.0	0.0		3.0		8.9

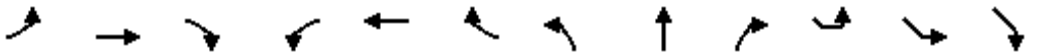
Intersection Summary	
HCM 6th Ctrl Delay	151.8
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

HORIZON YEAR PLUS PROJECT
PROJECT ALTERNATIVE



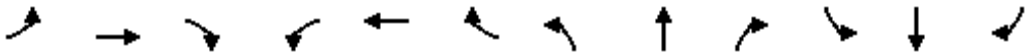
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	366	1464	102	111	1673	224	136	405	88	417	612	420
Future Volume (vph)	366	1464	102	111	1673	224	136	405	88	417	612	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.80	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1158	1711	4916	1404	1711	3421	1219	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1158	1711	4916	1404	1711	3421	1219	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	394	1574	110	117	1761	236	145	431	94	463	680	467
RTOR Reduction (vph)	0	0	69	0	0	105	0	0	64	193	0	0
Lane Group Flow (vph)	394	1574	41	117	1761	131	145	431	30	270	680	467
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	15.9	45.2	45.2	9.7	39.0	39.0	26.1	26.1	37.8	12.0	12.0	12.0
Effective Green, g (s)	15.9	45.2	45.2	9.7	39.0	39.0	26.1	26.1	37.8	12.0	12.0	12.0
Actuated g/C Ratio	0.13	0.38	0.38	0.08	0.32	0.32	0.22	0.22	0.31	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	439	1851	436	138	1597	456	372	744	383	171	171	153
v/s Ratio Prot	0.12	c0.32		0.07	c0.36		0.08	c0.13	0.01	0.16	c0.40	0.31
v/s Ratio Perm			0.04			0.09			0.02			
v/c Ratio	0.90	0.85	0.10	0.85	1.10	0.29	0.39	0.58	0.08	1.58	3.98	3.05
Uniform Delay, d1	51.2	34.3	24.2	54.4	40.5	30.2	40.1	42.0	28.9	54.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.29	0.63	0.67	1.31	1.30	1.17	1.00	1.00	1.00
Incremental Delay, d2	20.1	5.1	0.4	25.2	53.2	1.1	0.1	0.3	0.0	287.6	1353.4	940.7
Delay (s)	71.3	39.4	24.6	95.3	78.8	21.3	52.5	54.9	33.9	341.6	1407.4	994.7
Level of Service	E	D	C	F	E	C	D	D	C	F	F	F
Approach Delay (s)		44.7			73.3			51.4			757.9	
Approach LOS		D			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	272.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	110.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	477
Future Volume (vph)	477
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.97
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1492
Flt Permitted	1.00
Satd. Flow (perm)	1492
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	530
RTOR Reduction (vph)	202
Lane Group Flow (vph)	328
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	27.9
Effective Green, g (s)	27.9
Actuated g/C Ratio	0.23
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	346
v/s Ratio Prot	c0.13
v/s Ratio Perm	0.09
v/c Ratio	0.95
Uniform Delay, d1	45.3
Progression Factor	1.00
Incremental Delay, d2	34.4
Delay (s)	79.7
Level of Service	E
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	1291	474	121	1602	168	248	731	121	120	408	57
Future Volume (vph)	132	1291	474	121	1602	168	248	731	121	120	408	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1450	1711	4916	1333	3385	3490	1501	1711	3350	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	3319	4916	1450	1711	4916	1333	3385	3490	1501	769	3350	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	142	1388	510	127	1686	177	131	385	64	140	474	66
RTOR Reduction (vph)	0	0	195	0	0	75	0	0	49	0	11	0
Lane Group Flow (vph)	142	1388	315	127	1686	102	131	385	15	140	529	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	11.7	45.3	45.3	14.2	47.8	47.8	10.0	28.9	28.9	38.9	28.9	
Effective Green, g (s)	11.7	45.3	45.3	14.2	47.8	47.8	10.0	28.9	28.9	38.9	28.9	
Actuated g/C Ratio	0.10	0.38	0.38	0.12	0.40	0.40	0.08	0.24	0.24	0.32	0.24	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	323	1855	547	202	1958	530	282	840	361	327	806	
v/s Ratio Prot	0.04	c0.28		0.07	c0.34		c0.04	0.11		0.04	c0.16	
v/s Ratio Perm			0.22			0.08			0.01	0.10		
v/c Ratio	0.44	0.75	0.58	0.63	0.86	0.19	0.46	0.46	0.04	0.43	0.66	
Uniform Delay, d1	51.1	32.4	29.7	50.4	33.1	23.5	52.4	38.9	34.9	30.0	41.1	
Progression Factor	0.90	0.85	0.71	1.14	0.94	0.96	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.3	0.4	5.7	5.0	0.8	1.2	0.8	0.1	0.9	2.9	
Delay (s)	45.9	27.7	21.4	63.0	36.2	23.3	53.7	39.7	35.0	30.9	44.0	
Level of Service	D	C	C	E	D	C	D	D	D	C	D	
Approach Delay (s)		27.4			36.7			42.3			41.3	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	10	21	1336	17	16	1939	12	4	2	1	4	1
Future Volume (vph)	10	21	1336	17	16	1939	12	4	2	1	4	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.98
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.92
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.97	1.00		0.98
Satd. Flow (prot)		1707	4916	1443	1705	4916	1383		1727	1481		1586
Flt Permitted		0.07	1.00	1.00	0.16	1.00	1.00		0.79	1.00		0.89
Satd. Flow (perm)		129	4916	1443	285	4916	1383		1413	1481		1440
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	11	23	1484	19	18	2154	13	8	4	2	5	1
RTOR Reduction (vph)	0	0	0	3	0	0	2	0	0	2	0	3
Lane Group Flow (vph)	0	34	1484	16	18	2154	11	0	12	0	0	12
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases		6		6	2		2	8		8	4	
Actuated Green, G (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Effective Green, g (s)		100.6	100.6	100.6	100.6	100.6	100.6		8.8	8.8		8.8
Actuated g/C Ratio		0.84	0.84	0.84	0.84	0.84	0.84		0.07	0.07		0.07
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		108	4121	1209	238	4121	1159		103	108		105
v/s Ratio Prot			0.30			c0.44						
v/s Ratio Perm		0.26		0.01	0.06		0.01		c0.01	0.00		0.01
v/c Ratio		0.31	0.36	0.01	0.08	0.52	0.01		0.12	0.00		0.12
Uniform Delay, d1		2.1	2.2	1.6	1.7	2.8	1.6		52.0	51.5		52.0
Progression Factor		2.64	2.83	4.35	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		7.2	0.2	0.0	0.6	0.5	0.0		0.5	0.0		0.5
Delay (s)		12.8	6.6	6.9	2.3	3.3	1.6		52.5	51.5		52.5
Level of Service		B	A	A	A	A	A		D	D		D
Approach Delay (s)			6.7			3.3			52.3			52.5
Approach LOS			A			A			D			D

Intersection Summary			
HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

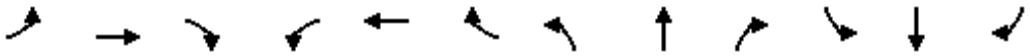
c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	7
Future Volume (vph)	7
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	9
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

HCM 6th Signalized Intersection Summary
4: Cattaraugus Ave & Venice Blvd

06/01/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	1221	19	56	1762	171	123	217	14	106	79	20
Future Volume (veh/h)	72	1221	19	56	1762	171	123	217	14	106	79	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.99		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	78	1327	21	61	1915	186	134	236	15	115	86	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	3119	925	307	3119	914	181	274	17	190	134	30
Arrive On Green	1.00	1.00	1.00	0.61	0.61	0.61	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	195	5106	1514	404	5106	1496	486	949	58	500	463	105
Grp Volume(v), veh/h	78	1327	21	61	1915	186	385	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	195	1702	1514	404	1702	1496	1493	0	0	1069	0	0
Q Serve(g_s), s	45.3	0.0	0.0	8.3	28.0	6.6	6.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	73.3	0.0	0.0	8.3	28.0	6.6	30.1	0.0	0.0	23.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.35		0.04	0.52		0.10
Lane Grp Cap(c), veh/h	134	3119	925	307	3119	914	472	0	0	355	0	0
V/C Ratio(X)	0.58	0.43	0.02	0.20	0.61	0.20	0.82	0.00	0.00	0.63	0.00	0.00
Avail Cap(c_a), veh/h	134	3119	925	307	3119	914	642	0	0	500	0	0
HCM Platoon Ratio	2.00	2.00	2.00	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	0.09	0.09	0.09	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	0.0	10.7	14.5	10.4	41.1	0.0	0.0	38.0	0.0	0.0
Incr Delay (d2), s/veh	17.3	0.4	0.0	0.1	0.1	0.0	5.9	0.0	0.0	1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.1	0.0	0.7	9.8	2.1	11.8	0.0	0.0	6.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.4	0.0	10.8	14.6	10.4	46.9	0.0	0.0	39.8	0.0	0.0
LnGrp LOS	C	A	A	B	B	B	D	A	A	D	A	A
Approach Vol, veh/h		1426			2162			385			223	
Approach Delay, s/veh		2.2			14.1			46.9			39.8	
Approach LOS		A			B			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		78.8		41.2		78.8		41.2				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		30.0		25.3		75.3		32.1				
Green Ext Time (p_c), s		26.0		1.4		0.0		2.3				

Intersection Summary		
HCM 6th Ctrl Delay		14.5
HCM 6th LOS		B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	289	993	125	185	1414	48	176	1779	61	50	921	302
Future Volume (veh/h)	289	993	125	185	1414	48	176	1779	61	50	921	302
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	332	1141	144	206	1571	0	200	2022	69	53	969	318
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1375	416	264	1571		265	1870	64	183	1339	439
Arrive On Green	0.03	0.09	0.09	0.11	0.31	0.00	0.08	0.37	0.37	0.07	0.35	0.35
Sat Flow, veh/h	3456	5106	1545	1781	5106	1585	1781	5066	172	1781	3772	1236
Grp Volume(v), veh/h	332	1141	144	206	1571	0	200	1357	734	53	874	413
Grp Sat Flow(s),veh/h/ln	1728	1702	1545	1781	1702	1585	1781	1702	1834	1781	1702	1604
Q Serve(g_s), s	9.4	26.4	8.1	8.4	36.9	0.0	8.5	44.3	44.3	2.1	26.8	26.8
Cycle Q Clear(g_c), s	9.4	26.4	8.1	8.4	36.9	0.0	8.5	44.3	44.3	2.1	26.8	26.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.09	1.00		0.77
Lane Grp Cap(c), veh/h	408	1375	416	264	1571		265	1257	677	183	1208	569
V/C Ratio(X)	0.81	0.83	0.35	0.78	1.00		0.76	1.08	1.08	0.29	0.72	0.73
Avail Cap(c_a), veh/h	408	1413	428	264	1571		265	1257	677	208	1257	592
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	52.0	26.8	50.0	41.5	0.0	26.7	37.8	37.9	28.1	33.6	33.6
Incr Delay (d2), s/veh	10.7	5.2	2.0	13.9	22.8	0.0	11.7	49.9	59.5	0.9	2.0	4.2
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	4.8	12.7	3.4	6.9	18.2	0.0	4.3	26.3	30.2	0.9	11.0	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.8	57.2	28.8	63.9	64.3	0.0	38.4	87.8	97.4	28.9	35.6	37.9
LnGrp LOS	D	E	C	E	F		D	F	F	C	D	D
Approach Vol, veh/h		1617			1777			2291			1340	
Approach Delay, s/veh		53.6			64.3			86.5			36.0	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	51.0	18.6	38.1	14.0	49.3	14.0	42.7
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	11.4	46.3	10.4	28.4	10.5	28.8	11.4	38.9
Green Ext Time (p_c), s	0.0	0.0	0.0	3.9	0.0	7.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	63.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	9	23	1071	946	37
Future Volume (veh/h)	16	9	23	1071	946	37
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	17	10	25	1164	1892	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	81	72	270	2909	2593	1096
Arrive On Green	0.05	0.05	0.05	0.82	0.72	0.72
Sat Flow, veh/h	1781	1585	1781	3647	3705	1526
Grp Volume(v), veh/h	17	10	25	1164	1892	74
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1526
Q Serve(g_s), s	0.7	0.5	0.2	6.8	24.0	1.1
Cycle Q Clear(g_c), s	0.7	0.5	0.2	6.8	24.0	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	81	72	270	2909	2593	1096
V/C Ratio(X)	0.21	0.14	0.09	0.40	0.73	0.07
Avail Cap(c_a), veh/h	664	591	576	2909	2790	1179
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	35.5	35.4	6.6	1.9	6.4	3.2
Incr Delay (d2), s/veh	0.5	0.3	0.1	0.2	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.1	0.8	6.3	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.0	35.7	6.7	2.1	7.6	3.3
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	27			1189	1966	
Approach Delay, s/veh	35.9			2.2	7.5	
Approach LOS	D			A	A	

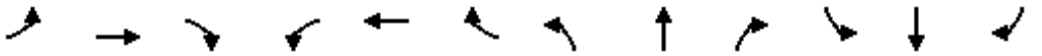
Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	68.5		8.7	7.7	60.8
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	8.8		2.7	2.2	26.0
Green Ext Time (p_c), s	22.9		0.0	0.0	29.5

Intersection Summary	
HCM 6th Ctrl Delay	5.7
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	351	55	124	535	254	34	323	98	202	296	91
Future Volume (vph)	105	351	55	124	535	254	34	323	98	202	296	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1397	1711	1714		1711	1801	1531	1711	1801	1412
Flt Permitted	0.09	1.00	1.00	0.45	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	171	1801	1397	817	1714		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	382	60	135	582	276	37	351	107	220	322	99
RTOR Reduction (vph)	0	0	28	0	14	0	0	0	49	0	0	0
Lane Group Flow (vph)	114	382	32	135	844	0	37	351	58	220	322	99
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	63.4	63.4	63.4	63.4	63.4		6.0	28.7	28.7	12.6	35.3	35.3
Effective Green, g (s)	63.4	63.4	63.4	63.4	63.4		6.0	28.7	28.7	12.6	35.3	35.3
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53		0.05	0.24	0.24	0.10	0.29	0.29
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	90	951	738	431	905		85	430	366	179	529	415
v/s Ratio Prot		0.21			0.49		0.02	c0.19		c0.13	0.18	
v/s Ratio Perm	c0.67		0.02	0.17					0.04			0.07
v/c Ratio	1.27	0.40	0.04	0.31	0.93		0.44	0.82	0.16	1.23	0.61	0.24
Uniform Delay, d1	28.3	16.9	13.7	16.0	26.3		55.4	43.2	36.1	53.7	36.4	32.1
Progression Factor	1.00	1.00	1.00	0.80	0.89		1.00	1.00	1.00	1.59	0.47	0.42
Incremental Delay, d2	182.5	1.3	0.1	1.6	15.4		1.3	10.8	0.1	107.7	0.1	0.0
Delay (s)	210.8	18.2	13.8	14.4	38.8		56.7	54.0	36.2	193.0	17.1	13.7
Level of Service	F	B	B	B	D		E	D	D	F	B	B
Approach Delay (s)		57.2			35.5			50.3			77.0	
Approach LOS		E			D			D			E	

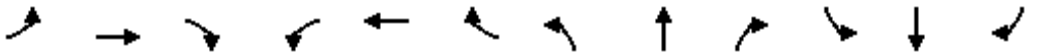
Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	488	148	112	840	71	72
Future Volume (vph)	488	148	112	840	71	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.41	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	734	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	530	161	122	913	77	78
RTOR Reduction (vph)	0	17	0	0	0	66
Lane Group Flow (vph)	530	144	122	913	77	12
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	88.6	88.6	101.6	101.6	9.1	18.1
Effective Green, g (s)	88.6	88.6	101.6	101.6	9.1	18.1
Actuated g/C Ratio	0.74	0.74	0.85	0.85	0.08	0.15
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1329	1130	694	1524	129	281
v/s Ratio Prot	0.29		0.01	c0.51		0.00
v/s Ratio Perm		0.09	0.14		c0.05	0.00
v/c Ratio	0.40	0.13	0.18	0.60	0.60	0.04
Uniform Delay, d1	5.8	4.5	2.2	2.9	53.7	43.5
Progression Factor	1.82	2.32	0.60	1.39	1.00	1.00
Incremental Delay, d2	0.7	0.2	0.0	0.6	4.9	0.0
Delay (s)	11.3	10.7	1.3	4.6	58.5	43.6
Level of Service	B	B	A	A	E	D
Approach Delay (s)	11.2			4.2	51.0	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	331	120	109	670	176	148	943	76	78	734	127
Future Volume (vph)	111	331	120	109	670	176	148	943	76	78	734	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.85
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1711	1801	1280	1711	1801	1531	1711	3421	1484	1711	3421	1303
Flt Permitted	0.09	1.00	1.00	0.38	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	168	1801	1280	676	1801	1531	1711	3421	1484	1711	3421	1303
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	121	360	130	118	728	191	161	1025	83	85	798	138
RTOR Reduction (vph)	0	0	83	0	0	0	0	0	51	0	0	86
Lane Group Flow (vph)	121	360	47	118	728	191	161	1025	32	85	798	52
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	53.3	43.0	43.0	53.3	43.0	43.0	14.1	36.2	46.5	9.1	31.0	41.3
Effective Green, g (s)	53.3	43.0	43.0	53.3	43.0	43.0	14.1	36.2	46.5	9.1	31.0	41.3
Actuated g/C Ratio	0.44	0.36	0.36	0.44	0.36	0.36	0.12	0.30	0.39	0.08	0.26	0.34
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	207	645	458	389	645	548	201	1032	575	129	883	448
v/s Ratio Prot	c0.05	0.20		0.03	c0.40		0.09	c0.30	0.00	0.05	c0.23	0.01
v/s Ratio Perm	0.21		0.04	0.11		0.12			0.02			0.03
v/c Ratio	0.58	0.56	0.10	0.30	1.13	0.35	0.80	0.99	0.06	0.66	0.90	0.12
Uniform Delay, d1	26.7	30.9	25.6	20.8	38.5	28.2	51.6	41.8	23.0	53.9	43.1	26.9
Progression Factor	1.01	0.58	1.00	0.87	0.91	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	3.3	0.4	0.0	60.0	0.2	19.0	26.3	0.0	8.9	13.2	0.0
Delay (s)	29.5	21.2	26.1	18.1	95.0	25.2	70.6	68.1	23.0	62.9	56.3	26.9
Level of Service	C	C	C	B	F	C	E	E	C	E	E	C
Approach Delay (s)		23.9			73.4			65.4			52.8	
Approach LOS		C			E			E			D	

Intersection Summary			
HCM 2000 Control Delay	57.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	418	33	21	901	33	45	0	11	0	0	10
Future Volume (veh/h)	64	418	33	21	901	33	45	0	11	0	0	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	70	454	36	42	1802	36	49	0	12	0	0	11
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	60	1474	1249	852	1618	1371	131	0	80	0	95	80
Arrive On Green	1.00	1.00	1.00	0.04	0.87	0.87	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	252	1870	1585	1781	1870	1585	1404	0	1585	0	1870	1585
Grp Volume(v), veh/h	70	454	36	42	1802	36	49	0	12	0	0	11
Grp Sat Flow(s),veh/h/ln	252	1870	1585	1781	1870	1585	1404	0	1585	0	1870	1585
Q Serve(g_s), s	0.0	0.0	0.0	0.4	103.8	0.4	4.1	0.0	0.9	0.0	0.0	0.8
Cycle Q Clear(g_c), s	94.5	0.0	0.0	0.4	103.8	0.4	4.1	0.0	0.9	0.0	0.0	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	60	1474	1249	852	1618	1371	131	0	80	0	95	80
V/C Ratio(X)	1.17	0.31	0.03	0.05	1.11	0.03	0.37	0.00	0.15	0.00	0.00	0.14
Avail Cap(c_a), veh/h	60	1474	1249	997	1618	1371	472	0	465	0	549	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	47.3	0.0	0.0	1.4	8.1	1.1	56.0	0.0	54.5	0.0	0.0	54.4
Incr Delay (d2), s/veh	160.4	0.5	0.0	0.0	60.4	0.0	0.7	0.0	0.3	0.0	0.0	0.3
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	4.4	0.2	0.0	0.1	43.8	0.1	1.5	0.0	0.4	0.0	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	207.7	0.5	0.0	1.4	68.5	1.2	56.7	0.0	54.8	0.0	0.0	54.7
LnGrp LOS	F	A	A	A	F	A	E	A	D	A	A	D
Approach Vol, veh/h		560			1880			61			11	
Approach Delay, s/veh		26.3			65.7			56.3			54.7	
Approach LOS		C			E			E			D	

Timer - Assigned Phs	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	109.1		10.9	9.3	99.8		10.9					
Change Period (Y+Rc), s	5.3		* 4.8	4.0	5.3		* 4.8					
Max Green Setting (Gmax), s	74.7		* 35	15.0	55.7		* 35					
Max Q Clear Time (g_c+I1), s	105.8		6.1	2.4	96.5		2.8					
Green Ext Time (p_c), s	0.0		0.2	0.0	0.0		0.0					

Intersection Summary		
HCM 6th Ctrl Delay	56.6	
HCM 6th LOS	E	

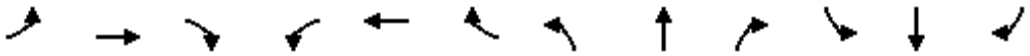
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	425	12	2	896	66	14
Future Volume (vph)	425	12	2	896	66	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1689	
Flt Permitted	1.00	1.00	0.49	1.00	0.96	
Satd. Flow (perm)	1801	1531	886	1801	1689	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	462	13	2	974	72	15
RTOR Reduction (vph)	0	2	0	0	7	0
Lane Group Flow (vph)	462	11	2	974	80	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	101.6	101.6	101.6	101.6	9.1	
Effective Green, g (s)	101.6	101.6	101.6	101.6	9.1	
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.08	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1524	1296	750	1524	128	
v/s Ratio Prot	0.26			c0.54		
v/s Ratio Perm		0.01	0.00		c0.05	
v/c Ratio	0.30	0.01	0.00	0.64	0.62	
Uniform Delay, d1	1.9	1.4	1.4	3.1	53.8	
Progression Factor	0.99	0.58	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.0	0.0	2.1	6.6	
Delay (s)	2.4	0.8	1.4	5.1	60.4	
Level of Service	A	A	A	A	E	
Approach Delay (s)	2.3			5.1	60.4	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	434	27	7	1014	16	58	1	22	61	24	112
Future Volume (vph)	18	434	27	7	1014	16	58	1	22	61	24	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.96			0.92	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.98	
Satd. Flow (prot)		1797	1531		1800	1531		1674			1637	
Flt Permitted		0.50	1.00		1.00	1.00		0.41			0.87	
Satd. Flow (perm)		898	1531		1794	1531		709			1441	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	472	29	8	1102	17	63	1	24	66	26	122
RTOR Reduction (vph)	0	0	11	0	0	7	0	12	0	0	43	0
Lane Group Flow (vph)	0	492	18	0	1110	10	0	76	0	0	171	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		73.8	73.8		73.8	73.8		14.5			18.2	
Effective Green, g (s)		73.8	73.8		73.8	73.8		14.5			18.2	
Actuated g/C Ratio		0.61	0.61		0.61	0.61		0.12			0.15	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		552	941		1103	941		85			218	
v/s Ratio Prot												
v/s Ratio Perm		0.55	0.01		c0.62	0.01		c0.11			c0.12	
v/c Ratio		0.89	0.02		1.01	0.01		0.89			0.78	
Uniform Delay, d1		19.7	9.0		23.1	9.0		52.0			49.0	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		19.2	0.0		28.7	0.0		61.5			15.4	
Delay (s)		38.9	9.0		51.8	9.0		113.4			64.5	
Level of Service		D	A		D	A		F			E	
Approach Delay (s)		37.2			51.1			113.4			64.5	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	51.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	252	32	1025	824	32	57	954	640	189	587	33
Future Volume (veh/h)	44	252	32	1025	824	32	57	954	640	189	587	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	0.99		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	274	0	1114	896	0	62	1037	696	205	638	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	1132		357	1380		355	1379	760	260	1732	98
Arrive On Green	0.22	0.22	0.00	0.10	0.39	0.00	0.39	0.39	0.39	0.08	0.51	0.51
Sat Flow, veh/h	617	5274	0	3456	3647	0	759	3554	1538	3456	3414	192
Grp Volume(v), veh/h	48	274	0	1114	896	0	62	1037	696	205	332	342
Grp Sat Flow(s),veh/h/ln	617	1702	0	1728	1777	0	759	1777	1538	1728	1777	1830
Q Serve(g_s), s	8.3	5.3	0.0	12.4	24.7	0.0	6.5	30.3	46.6	7.0	13.6	13.6
Cycle Q Clear(g_c), s	13.0	5.3	0.0	12.4	24.7	0.0	6.5	30.3	46.6	7.0	13.6	13.6
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	172	1132		357	1380		355	1379	760	260	902	928
V/C Ratio(X)	0.28	0.24		3.12	0.65		0.17	0.75	0.92	0.79	0.37	0.37
Avail Cap(c_a), veh/h	229	1604		357	1380		355	1379	760	279	902	928
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	38.4	0.0	53.8	30.0	0.0	24.5	31.7	28.4	54.5	17.9	17.9
Incr Delay (d2), s/veh	3.5	0.4	0.0	961.2	1.1	0.0	1.1	3.8	17.5	13.2	1.2	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	1.4	2.2	0.0	53.0	10.6	0.0	1.3	13.4	21.3	3.5	5.7	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	38.8	0.0	1015.0	31.1	0.0	25.5	35.6	45.9	67.7	19.1	19.0
LnGrp LOS	D	D		F	C		C	D	D	E	B	B
Approach Vol, veh/h		322			2010			1795			879	
Approach Delay, s/veh		40.1			576.4			39.2			30.4	
Approach LOS		D			F			D			C	

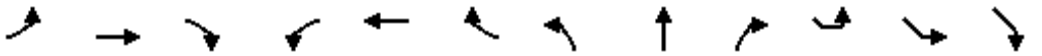
Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	32.9	14.3	52.8		52.9		67.1
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	15.0	9.0	48.6		26.7		15.6
Green Ext Time (p_c), s	0.0	4.9	0.0	0.0		4.7		6.3

Intersection Summary	
HCM 6th Ctrl Delay	253.4
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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



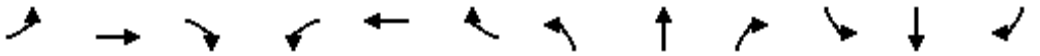
Movement	EBL	EBT	EBR	WBL	WBT	WBR2	NBL2	NBT	NBR	SEL2	SEL	SER
Lane Configurations												
Traffic Volume (vph)	215	1493	107	192	1739	185	156	486	283	167	460	276
Future Volume (vph)	215	1493	107	192	1739	185	156	486	283	167	460	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.76	1.00	1.00	0.92	1.00	1.00	0.82	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (prot)	3319	4916	1156	1711	4916	1407	1711	3421	1254	1711	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00
Satd. Flow (perm)	3319	4916	1156	1711	4916	1407	1711	3421	1254	1711	1711	1531
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	231	1605	115	202	1831	195	166	517	301	186	511	307
RTOR Reduction (vph)	0	0	78	0	0	98	0	0	63	140	0	0
Lane Group Flow (vph)	231	1605	37	202	1831	97	166	517	238	47	511	307
Confl. Peds. (#/hr)			152			37			295			
Confl. Bikes (#/hr)			22			26			19			
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Split	NA	custom	Prot	Prot	Prot
Protected Phases	1	6		5	2		8	8	5	3	3	3
Permitted Phases			6			2			4			
Actuated Green, G (s)	9.8	39.0	39.0	14.8	44.0	44.0	27.2	27.2	44.0	12.0	12.0	12.0
Effective Green, g (s)	9.8	39.0	39.0	14.8	44.0	44.0	27.2	27.2	44.0	12.0	12.0	12.0
Actuated g/C Ratio	0.08	0.32	0.32	0.12	0.37	0.37	0.23	0.23	0.37	0.10	0.10	0.10
Clearance Time (s)	6.0	7.0	7.0	6.0	7.0	7.0	7.0	7.0	6.0	7.0	7.0	7.0
Vehicle Extension (s)	0.2	5.5	5.5	0.2	4.5	4.5	0.2	0.2	0.2	4.0	4.0	4.0
Lane Grp Cap (vph)	271	1597	375	211	1802	515	387	775	459	171	171	153
v/s Ratio Prot	0.07	0.33		c0.12	c0.37		0.10	c0.15	0.06	0.03	c0.30	0.20
v/s Ratio Perm			0.03			0.07			0.13			
v/c Ratio	0.85	1.01	0.10	0.96	1.02	0.19	0.43	0.67	0.52	0.27	2.99	2.01
Uniform Delay, d1	54.4	40.5	28.3	52.3	38.0	25.8	39.7	42.3	29.7	50.0	54.0	54.0
Progression Factor	1.00	1.00	1.00	1.32	0.66	0.77	0.93	0.92	0.68	1.00	1.00	1.00
Incremental Delay, d2	21.2	23.7	0.5	42.4	22.8	0.6	0.1	0.8	0.2	1.2	910.3	475.3
Delay (s)	75.6	64.2	28.8	111.2	47.8	20.4	37.1	39.7	20.3	51.1	964.3	529.3
Level of Service	E	E	C	F	D	C	D	D	C	D	F	F
Approach Delay (s)		63.5			51.2			33.3			495.6	
Approach LOS		E			D			C			F	

Intersection Summary			
HCM 2000 Control Delay	145.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SER2
Lane Configurations	
Traffic Volume (vph)	338
Future Volume (vph)	338
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.96
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1470
Flt Permitted	1.00
Satd. Flow (perm)	1470
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	376
RTOR Reduction (vph)	196
Lane Group Flow (vph)	180
Confl. Peds. (#/hr)	37
Confl. Bikes (#/hr)	
Turn Type	custom
Protected Phases	1
Permitted Phases	3
Actuated Green, G (s)	21.8
Effective Green, g (s)	21.8
Actuated g/C Ratio	0.18
Clearance Time (s)	6.0
Vehicle Extension (s)	0.2
Lane Grp Cap (vph)	267
v/s Ratio Prot	0.06
v/s Ratio Perm	0.07
v/c Ratio	0.68
Uniform Delay, d1	45.8
Progression Factor	1.00
Incremental Delay, d2	5.2
Delay (s)	51.0
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	1746	393	211	1471	84	279	456	248	123	490	56
Future Volume (vph)	95	1746	393	211	1471	84	279	456	248	123	490	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.87	1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3319	4916	1448	1711	4916	1332	3385	3490	1501	1711	3361	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.59	1.00	
Satd. Flow (perm)	3319	4916	1448	1711	4916	1332	3385	3490	1501	1066	3361	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.95	0.95	0.86	0.86	0.86
Growth Factor (vph)	100%	100%	100%	100%	100%	100%	50%	50%	50%	100%	100%	100%
Adj. Flow (vph)	102	1877	423	222	1548	88	147	240	131	143	570	65
RTOR Reduction (vph)	0	0	148	0	0	54	0	0	97	0	8	0
Lane Group Flow (vph)	102	1877	275	222	1548	34	147	240	34	143	627	0
Confl. Peds. (#/hr)			24			70			23			8
Confl. Bikes (#/hr)			10			31			4			2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	0%	0%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		3	8		7	4	
Permitted Phases			6			2			8	4		
Actuated Green, G (s)	12.0	37.6	37.6	20.1	45.7	45.7	10.0	30.7	30.7	40.7	30.7	
Effective Green, g (s)	12.0	37.6	37.6	20.1	45.7	45.7	10.0	30.7	30.7	40.7	30.7	
Actuated g/C Ratio	0.10	0.31	0.31	0.17	0.38	0.38	0.08	0.26	0.26	0.34	0.26	
Clearance Time (s)	5.0	5.4	5.4	5.0	5.4	5.4	5.0	6.2	6.2	5.0	6.2	
Vehicle Extension (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.0	5.0	3.0	5.6	
Lane Grp Cap (vph)	331	1540	453	286	1872	507	282	892	384	415	859	
v/s Ratio Prot	0.03	c0.38		0.13	c0.31		c0.04	0.07		0.03	c0.19	
v/s Ratio Perm			0.19			0.03			0.02	0.09		
v/c Ratio	0.31	1.22	0.61	0.78	0.83	0.07	0.52	0.27	0.09	0.34	0.73	
Uniform Delay, d1	50.1	41.2	34.9	47.8	33.6	23.6	52.7	35.7	34.0	28.6	40.9	
Progression Factor	0.82	0.78	0.54	1.32	0.91	5.11	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	99.1	0.6	11.5	4.0	0.2	1.7	0.3	0.2	0.5	4.2	
Delay (s)	41.0	131.1	19.5	74.7	34.6	120.8	54.4	36.0	34.2	29.1	45.0	
Level of Service	D	F	B	E	C	F	D	D	C	C	D	
Approach Delay (s)		107.6			43.5			40.8			42.1	
Approach LOS		F			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	70.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

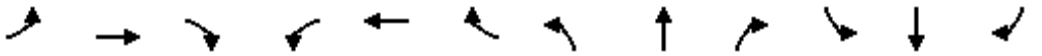
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	7	18	2070	43	126	1478	11	23	1	17	127	6
Future Volume (vph)	7	18	2070	43	126	1478	11	23	1	17	127	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Lane Util. Factor		1.00	0.91	1.00	1.00	0.91	1.00		1.00	1.00		1.00
Frpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.90		1.00	0.97		0.99
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00		0.99	1.00		0.99
Frt		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00		0.95	1.00		0.96
Satd. Flow (prot)		1704	4916	1442	1711	4916	1379		1704	1487		1657
Flt Permitted		0.12	1.00	1.00	0.05	1.00	1.00		0.69	1.00		0.75
Satd. Flow (perm)		213	4916	1442	86	4916	1379		1236	1487		1291
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.90	0.90	0.53	0.53	0.53	0.82	0.82
Adj. Flow (vph)	8	20	2300	48	140	1642	12	43	2	32	155	7
RTOR Reduction (vph)	0	0	0	8	0	0	3	0	0	12	0	10
Lane Group Flow (vph)	0	28	2300	40	140	1642	9	0	45	20	0	197
Confl. Peds. (#/hr)		16		8	8		16	13		14	14	
Confl. Bikes (#/hr)				13			33			2		
Turn Type	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA
Protected Phases			6			2			8			4
Permitted Phases	6	6		6	2		2	8		8	4	
Actuated Green, G (s)		85.4	85.4	85.4	85.4	85.4	85.4		24.0	24.0		24.0
Effective Green, g (s)		85.4	85.4	85.4	85.4	85.4	85.4		24.0	24.0		24.0
Actuated g/C Ratio		0.71	0.71	0.71	0.71	0.71	0.71		0.20	0.20		0.20
Clearance Time (s)		4.6	4.6	4.6	4.6	4.6	4.6		6.0	6.0		6.0
Vehicle Extension (s)		4.1	4.1	4.1	4.1	4.1	4.1		3.0	3.0		3.0
Lane Grp Cap (vph)		151	3498	1026	61	3498	981		247	297		258
v/s Ratio Prot			0.47			0.33						
v/s Ratio Perm		0.13		0.03	c1.63		0.01		0.04	0.01		c0.15
v/c Ratio		0.19	0.66	0.04	2.30	0.47	0.01		0.18	0.07		0.76
Uniform Delay, d1		5.7	9.4	5.1	17.3	7.5	5.0		39.9	38.9		45.3
Progression Factor		2.09	1.88	2.75	1.00	1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		2.3	0.8	0.1	631.1	0.5	0.0		0.4	0.1		12.5
Delay (s)		14.3	18.5	14.2	648.4	7.9	5.0		40.2	39.0		57.8
Level of Service		B	B	B	F	A	A		D	D		E
Approach Delay (s)			18.3			57.9			39.7			57.8
Approach LOS			B			E			D			E

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	10.6
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	37
Future Volume (vph)	37
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.82
Adj. Flow (vph)	45
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	13
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	2056	70	88	1347	40	29	36	13	193	120	4
Future Volume (veh/h)	73	2056	70	88	1347	40	29	36	13	193	120	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.94	0.99		0.96	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	2235	76	96	1464	43	32	39	14	210	130	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	3209	952	114	3209	941	180	210	69	299	155	5
Arrive On Green	0.63	0.63	0.63	0.63	0.63	0.63	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	347	5106	1515	158	5106	1498	509	773	253	922	571	18
Grp Volume(v), veh/h	79	2235	76	96	1464	43	85	0	0	344	0	0
Grp Sat Flow(s),veh/h/ln	347	1702	1515	158	1702	1498	1536	0	0	1511	0	0
Q Serve(g_s), s	18.4	34.7	2.4	40.7	17.9	1.3	0.0	0.0	0.0	21.1	0.0	0.0
Cycle Q Clear(g_c), s	36.3	34.7	2.4	75.4	17.9	1.3	4.5	0.0	0.0	25.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.38		0.16	0.61		0.01
Lane Grp Cap(c), veh/h	226	3209	952	114	3209	941	458	0	0	459	0	0
V/C Ratio(X)	0.35	0.70	0.08	0.84	0.46	0.05	0.19	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	226	3209	952	114	3209	941	647	0	0	644	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.1	14.7	8.7	48.6	11.6	8.5	33.4	0.0	0.0	41.0	0.0	0.0
Incr Delay (d2), s/veh	4.2	1.3	0.2	39.0	0.3	0.1	0.2	0.0	0.0	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	12.4	0.8	4.1	6.3	0.4	2.0	0.0	0.0	9.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	16.0	8.9	87.6	11.9	8.6	33.6	0.0	0.0	44.1	0.0	0.0
LnGrp LOS	C	B	A	F	B	A	C	A	A	D	A	A
Approach Vol, veh/h		2390			1603			85			344	
Approach Delay, s/veh		16.1			16.4			33.6			44.1	
Approach LOS		B			B			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		80.9		39.1		80.9		39.1				
Change Period (Y+Rc), s		* 5.5		6.5		* 5.5		6.5				
Max Green Setting (Gmax), s		* 61		47.5		* 61		47.5				
Max Q Clear Time (g_c+I1), s		77.4		27.6		38.3		6.5				
Green Ext Time (p_c), s		0.0		2.1		20.7		0.5				

Intersection Summary		
HCM 6th Ctrl Delay	18.7	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	321	1667	120	144	927	12	72	918	51	133	1020	400
Future Volume (veh/h)	321	1667	120	144	927	12	72	918	51	133	1020	400
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	369	1916	138	160	1030	0	82	1043	58	140	1074	421
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.88	0.88	0.88	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	408	1413	428	256	1625		223	1705	95	294	1249	490
Arrive On Green	0.03	0.09	0.09	0.11	0.32	0.00	0.08	0.35	0.35	0.08	0.35	0.35
Sat Flow, veh/h	3456	5106	1546	1781	5106	1585	1781	4942	274	1781	3572	1400
Grp Volume(v), veh/h	369	1916	138	160	1030	0	82	718	383	140	1024	471
Grp Sat Flow(s),veh/h/ln	1728	1702	1546	1781	1702	1585	1781	1702	1812	1781	1702	1568
Q Serve(g_s), s	10.0	33.2	7.8	6.1	20.7	0.0	3.3	21.0	21.1	5.9	33.6	33.6
Cycle Q Clear(g_c), s	10.0	33.2	7.8	6.1	20.7	0.0	3.3	21.0	21.1	5.9	33.6	33.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.89
Lane Grp Cap(c), veh/h	408	1413	428	256	1625		223	1175	625	294	1190	548
V/C Ratio(X)	0.90	1.36	0.32	0.63	0.63		0.37	0.61	0.61	0.48	0.86	0.86
Avail Cap(c_a), veh/h	408	1413	428	256	1625		233	1257	669	295	1257	579
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.56	0.56	0.56	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	54.5	26.7	49.1	34.9	0.0	26.8	32.6	32.6	23.9	36.3	36.3
Incr Delay (d2), s/veh	14.8	163.0	1.1	4.7	1.9	0.0	1.0	1.3	2.4	1.2	6.0	12.0
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	5.5	36.4	3.1	4.8	8.6	0.0	1.4	8.6	9.4	2.5	14.4	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.4	217.5	27.8	53.8	36.8	0.0	27.8	33.9	35.1	25.1	42.3	48.3
LnGrp LOS	E	F	C	D	D		C	C	D	C	D	D
Approach Vol, veh/h		2423			1190			1183			1635	
Approach Delay, s/veh		182.2			39.1			33.9			42.5	
Approach LOS		F			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	48.1	19.0	39.0	13.3	48.7	14.0	44.0
Change Period (Y+Rc), s	4.0	* 6.7	* 5.8	* 5.8	4.0	* 6.7	4.0	* 5.8
Max Green Setting (Gmax), s	10.0	* 44	* 10	* 33	10.0	* 44	10.0	* 35
Max Q Clear Time (g_c+I1), s	7.9	23.1	8.1	35.2	5.3	35.6	12.0	22.7
Green Ext Time (p_c), s	0.1	12.2	0.1	0.0	0.1	5.8	0.0	7.6

Intersection Summary	
HCM 6th Ctrl Delay	92.9
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

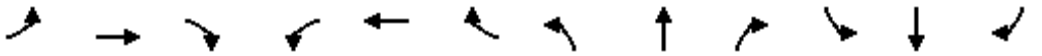
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	34	39	949	1076	48
Future Volume (veh/h)	16	34	39	949	1076	48
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1900	1900
Adj Flow Rate, veh/h	17	37	42	1032	2152	96
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.25
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	121	108	245	2872	2507	1058
Arrive On Green	0.07	0.07	0.07	0.81	0.69	0.69
Sat Flow, veh/h	1781	1585	1781	3647	3705	1524
Grp Volume(v), veh/h	17	37	42	1032	2152	96
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1805	1524
Q Serve(g_s), s	0.8	1.9	0.4	6.7	38.2	1.7
Cycle Q Clear(g_c), s	0.8	1.9	0.4	6.7	38.2	1.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	121	108	245	2872	2507	1058
V/C Ratio(X)	0.14	0.34	0.17	0.36	0.86	0.09
Avail Cap(c_a), veh/h	605	538	483	2872	2542	1073
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	37.2	37.7	14.7	2.2	9.8	4.2
Incr Delay (d2), s/veh	0.2	0.7	0.1	0.2	3.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.7	0.5	1.1	12.1	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.4	38.4	14.9	2.4	13.3	4.3
LnGrp LOS	D	D	B	A	B	A
Approach Vol, veh/h	54			1074	2248	
Approach Delay, s/veh	38.1			2.8	12.9	
Approach LOS	D			A	B	

Timer - Assigned Phs	2		4	5	6
Phs Duration (G+Y+Rc), s	73.8		11.0	9.7	64.2
Change Period (Y+Rc), s	5.3		* 5.2	4.0	5.3
Max Green Setting (Gmax), s	59.7		* 29	17.0	59.7
Max Q Clear Time (g_c+I1), s	8.7		3.9	2.4	40.2
Green Ext Time (p_c), s	19.3		0.1	0.0	18.6

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	330	596	53	85	297	226	54	310	114	191	358	104
Future Volume (vph)	330	596	53	85	297	226	54	310	114	191	358	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.92
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1657	1801	1397	1711	1684		1711	1801	1531	1711	1801	1412
Flt Permitted	0.30	1.00	1.00	0.25	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	532	1801	1397	443	1684		1711	1801	1531	1711	1801	1412
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	359	648	58	92	323	246	59	337	124	208	389	113
RTOR Reduction (vph)	0	0	27	0	22	0	0	0	50	0	0	0
Lane Group Flow (vph)	359	648	31	92	547	0	59	337	74	208	389	113
Confl. Peds. (#/hr)	48		26				21					21
Confl. Bikes (#/hr)			1									3
Turn Type	Perm	NA	Perm	Perm	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases		2			2		7	4		3	8	
Permitted Phases	2		2	2					4			8
Actuated Green, G (s)	63.5	63.5	63.5	63.5	63.5		8.4	26.6	26.6	14.6	32.8	32.8
Effective Green, g (s)	63.5	63.5	63.5	63.5	63.5		8.4	26.6	26.6	14.6	32.8	32.8
Actuated g/C Ratio	0.53	0.53	0.53	0.53	0.53		0.07	0.22	0.22	0.12	0.27	0.27
Clearance Time (s)	5.6	5.6	5.6	5.6	5.6		4.4	5.3	5.3	4.4	5.3	5.3
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	281	953	739	234	891		119	399	339	208	492	385
v/s Ratio Prot		0.36			0.33		0.03	0.19		c0.12	c0.22	
v/s Ratio Perm	c0.68		0.02	0.21					0.05			0.08
v/c Ratio	1.28	0.68	0.04	0.39	0.61		0.50	0.84	0.22	1.00	0.79	0.29
Uniform Delay, d1	28.2	20.8	13.6	16.8	19.7		53.8	44.7	38.2	52.7	40.4	34.4
Progression Factor	1.00	1.00	1.00	1.41	1.38		1.00	1.00	1.00	0.82	1.17	1.17
Incremental Delay, d2	149.5	3.9	0.1	4.7	3.1		1.2	14.5	0.1	18.7	0.8	0.0
Delay (s)	177.8	24.7	13.7	28.4	30.2		54.9	59.2	38.3	61.7	48.0	40.2
Level of Service	F	C	B	C	C		D	E	D	E	D	D
Approach Delay (s)		75.7			30.0			53.7			50.8	
Approach LOS		E			C			D			D	

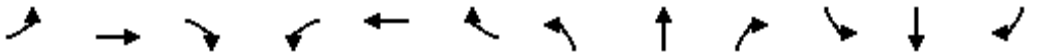
Intersection Summary			
HCM 2000 Control Delay	55.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	827	87	97	498	78	108
Future Volume (vph)	827	87	97	498	78	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.22	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	396	1801	1711	1531
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	899	95	105	541	85	117
RTOR Reduction (vph)	0	6	0	0	0	83
Lane Group Flow (vph)	899	89	105	541	85	34
Turn Type	NA	Perm	pm+pt	NA	Perm	pm+ov
Protected Phases	2		1	6		1
Permitted Phases		2	6		8	8
Actuated Green, G (s)	87.8	87.8	101.2	101.2	9.5	18.9
Effective Green, g (s)	87.8	87.8	101.2	101.2	9.5	18.9
Actuated g/C Ratio	0.73	0.73	0.84	0.84	0.08	0.16
Clearance Time (s)	5.3	5.3	4.0	5.3	4.0	4.0
Vehicle Extension (s)	5.0	5.0	2.0	5.0	2.0	2.0
Lane Grp Cap (vph)	1317	1120	436	1518	135	292
v/s Ratio Prot	c0.50		0.02	c0.30		0.01
v/s Ratio Perm		0.06	0.18		c0.05	0.01
v/c Ratio	0.68	0.08	0.24	0.36	0.63	0.12
Uniform Delay, d1	8.6	4.6	6.4	2.1	53.5	43.4
Progression Factor	0.78	1.12	0.39	0.25	1.00	1.00
Incremental Delay, d2	2.1	0.1	0.1	0.5	6.5	0.1
Delay (s)	8.8	5.2	2.6	1.0	60.0	43.4
Level of Service	A	A	A	A	E	D
Approach Delay (s)	8.5			1.3	50.4	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.3
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	525	191	186	393	144	145	647	280	105	848	130
Future Volume (vph)	117	525	191	186	393	144	145	647	280	105	848	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.88
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1710	1801	1280	1711	1801	1531	1711	3421	1494	1711	3421	1342
Flt Permitted	0.22	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	398	1801	1280	201	1801	1531	1711	3421	1494	1711	3421	1342
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	571	208	202	427	157	158	703	304	114	922	141
RTOR Reduction (vph)	0	0	146	0	0	0	0	0	74	0	0	76
Lane Group Flow (vph)	127	571	62	202	427	157	158	703	230	114	922	65
Confl. Peds. (#/hr)	3		127				88		2	2		88
Confl. Bikes (#/hr)			1						16			6
Bus Blockages (#/hr)	0	0	2	0	0	0	0	0	0	0	0	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	6		5	2		7	4	5	3	8	5
Permitted Phases	6		6	2		2			4			8
Actuated Green, G (s)	54.6	35.8	35.8	54.6	35.8	35.8	12.4	32.2	51.0	11.8	31.4	50.2
Effective Green, g (s)	54.6	35.8	35.8	54.6	35.8	35.8	12.4	32.2	51.0	11.8	31.4	50.2
Actuated g/C Ratio	0.46	0.30	0.30	0.46	0.30	0.30	0.10	0.27	0.42	0.10	0.26	0.42
Clearance Time (s)	4.9	5.8	5.8	4.9	5.8	5.8	5.3	5.8	4.9	4.9	5.6	4.9
Vehicle Extension (s)	2.0	5.0	5.0	2.0	5.0	5.0	2.0	5.0	2.0	2.0	5.0	2.0
Lane Grp Cap (vph)	386	537	381	328	537	456	176	917	634	168	895	561
v/s Ratio Prot	0.05	c0.32		c0.10	0.24		c0.09	0.21	0.06	0.07	c0.27	0.02
v/s Ratio Perm	0.10		0.05	0.18		0.10			0.10			0.03
v/c Ratio	0.33	1.06	0.16	0.62	0.80	0.34	0.90	0.77	0.36	0.68	1.03	0.12
Uniform Delay, d1	21.3	42.1	31.0	25.0	38.7	32.9	53.2	40.4	23.5	52.3	44.3	21.3
Progression Factor	0.74	0.75	0.74	1.15	0.93	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	52.4	0.7	1.5	7.6	1.3	39.0	4.6	0.1	8.3	38.1	0.0
Delay (s)	15.8	83.8	23.6	30.3	43.6	31.7	92.2	45.0	23.6	60.5	82.4	21.4
Level of Service	B	F	C	C	D	C	F	D	C	E	F	C
Approach Delay (s)		60.4			37.8			45.8			72.9	
Approach LOS		E			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	55.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.4
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	901	21	28	633	2	45	0	27	8	0	60
Future Volume (veh/h)	4	901	21	28	633	2	45	0	27	8	0	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	979	23	56	1266	2	49	0	29	9	0	65
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	1253	1062	526	1407	1193	63	0	259	63	0	259
Arrive On Green	1.00	1.00	1.00	0.05	0.75	0.75	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	437	1870	1585	1781	1870	1585	19	0	1585	20	0	1585
Grp Volume(v), veh/h	4	979	23	56	1266	2	49	0	29	9	0	65
Grp Sat Flow(s),veh/h/ln	437	1870	1585	1781	1870	1585	19	0	1585	20	0	1585
Q Serve(g_s), s	0.7	0.0	0.0	1.0	62.2	0.0	0.3	0.0	1.9	0.3	0.0	4.3
Cycle Q Clear(g_c), s	51.6	0.0	0.0	1.0	62.2	0.0	19.6	0.0	1.9	19.6	0.0	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	1253	1062	526	1407	1193	63	0	259	63	0	259
V/C Ratio(X)	0.02	0.78	0.02	0.11	0.90	0.00	0.78	0.00	0.11	0.14	0.00	0.25
Avail Cap(c_a), veh/h	167	1253	1062	661	1407	1193	237	0	465	243	0	465
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.46	0.46	0.46	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	0.0	4.3	11.4	3.7	60.0	0.0	42.8	59.9	0.0	43.8
Incr Delay (d2), s/veh	0.1	2.3	0.0	0.0	9.5	0.0	7.4	0.0	0.1	0.4	0.0	0.2
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	0.1	0.8	0.0	0.3	23.9	0.0	1.6	0.0	0.7	0.3	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.4	2.3	0.0	4.4	20.9	3.7	67.4	0.0	42.8	60.3	0.0	44.0
LnGrp LOS	B	A	A	A	C	A	E	A	D	E	A	D
Approach Vol, veh/h		1006			1324			78			74	
Approach Delay, s/veh		2.3			20.1			58.2			46.0	
Approach LOS		A			C			E			D	

Timer - Assigned Phs	2	4	5	6	8
Phs Duration (G+Y+Rc), s	95.3	24.7	9.9	85.4	24.7
Change Period (Y+Rc), s	5.3	* 4.8	4.0	5.3	* 4.8
Max Green Setting (Gmax), s	74.7	* 35	15.0	55.7	* 35
Max Q Clear Time (g_c+I1), s	64.2	21.6	3.0	53.6	21.6
Green Ext Time (p_c), s	9.3	0.1	0.0	1.8	0.1

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

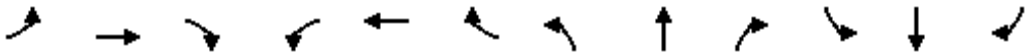
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	899	42	25	636	34	13
Future Volume (vph)	899	42	25	636	34	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	5.3	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.96	
Flt Protected	1.00	1.00	0.95	1.00	0.96	
Satd. Flow (prot)	1801	1531	1711	1801	1673	
Flt Permitted	1.00	1.00	0.26	1.00	0.96	
Satd. Flow (perm)	1801	1531	476	1801	1673	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	977	46	27	691	37	14
RTOR Reduction (vph)	0	2	0	0	13	0
Lane Group Flow (vph)	977	44	27	691	38	0
Turn Type	NA	Perm	Perm	NA	Perm	
Protected Phases	2			2		
Permitted Phases		2	2		4	
Actuated Green, G (s)	103.2	103.2	103.2	103.2	7.5	
Effective Green, g (s)	103.2	103.2	103.2	103.2	7.5	
Actuated g/C Ratio	0.86	0.86	0.86	0.86	0.06	
Clearance Time (s)	5.3	5.3	5.3	5.3	4.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	2.0	
Lane Grp Cap (vph)	1548	1316	409	1548	104	
v/s Ratio Prot	c0.54			0.38		
v/s Ratio Perm		0.03	0.06		c0.02	
v/c Ratio	0.63	0.03	0.07	0.45	0.36	
Uniform Delay, d1	2.6	1.2	1.2	1.9	54.0	
Progression Factor	0.62	0.33	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.0	0.3	0.9	0.8	
Delay (s)	3.3	0.4	1.6	2.8	54.8	
Level of Service	A	A	A	A	D	
Approach Delay (s)	3.1			2.8	54.8	
Approach LOS	A			A	D	

Intersection Summary			
HCM 2000 Control Delay	4.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.3
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	1008	9	10	442	12	40	1	28	198	11	155
Future Volume (vph)	28	1008	9	10	442	12	40	1	28	198	11	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.95			0.94	
Flt Protected		1.00	1.00		1.00	1.00		0.97			0.97	
Satd. Flow (prot)		1798	1531		1799	1531		1654			1652	
Flt Permitted		0.95	1.00		0.53	1.00		0.69			0.79	
Satd. Flow (perm)		1718	1531		958	1531		1167			1341	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	1096	10	11	480	13	43	1	30	215	12	168
RTOR Reduction (vph)	0	0	5	0	0	7	0	24	0	0	19	0
Lane Group Flow (vph)	0	1126	5	0	491	6	0	50	0	0	376	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2		2	2		2	3			4		
Actuated Green, G (s)		54.7	54.7		54.7	54.7		9.3			42.5	
Effective Green, g (s)		54.7	54.7		54.7	54.7		9.3			42.5	
Actuated g/C Ratio		0.46	0.46		0.46	0.46		0.08			0.35	
Clearance Time (s)		5.5	5.5		5.5	5.5		4.0			4.0	
Vehicle Extension (s)		5.0	5.0		5.0	5.0		2.0			2.0	
Lane Grp Cap (vph)		783	697		436	697		90			474	
v/s Ratio Prot												
v/s Ratio Perm		c0.66	0.00		0.51	0.00		c0.04			c0.28	
v/c Ratio		1.44	0.01		1.13	0.01		0.56			0.79	
Uniform Delay, d1		32.6	17.8		32.6	17.8		53.4			34.8	
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	
Incremental Delay, d2		204.4	0.0		82.2	0.0		4.2			8.3	
Delay (s)		237.1	17.8		114.9	17.9		57.5			43.1	
Level of Service		F	B		F	B		E			D	
Approach Delay (s)		235.1			112.4			57.5			43.1	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	163.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	108.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	827	52	655	420	20	56	607	1015	318	897	54
Future Volume (veh/h)	61	827	52	655	420	20	56	607	1015	318	897	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		1.00	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	899	0	712	457	0	61	660	1103	346	975	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	314	1402		357	1568		188	1172	669	279	1545	93
Arrive On Green	0.27	0.27	0.00	0.10	0.44	0.00	0.33	0.33	0.33	0.08	0.45	0.45
Sat Flow, veh/h	924	5274	0	3456	3647	0	544	3554	1533	3456	3398	206
Grp Volume(v), veh/h	66	899	0	712	457	0	61	660	1103	346	510	524
Grp Sat Flow(s),veh/h/ln	924	1702	0	1728	1777	0	544	1777	1533	1728	1777	1826
Q Serve(g_s), s	6.7	18.6	0.0	12.4	9.9	0.0	11.6	18.3	39.6	9.7	26.3	26.3
Cycle Q Clear(g_c), s	6.7	18.6	0.0	12.4	9.9	0.0	22.9	18.3	39.6	9.7	26.3	26.3
Prop In Lane	1.00		0.00	1.00		0.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	314	1402		357	1568		188	1172	669	279	808	830
V/C Ratio(X)	0.21	0.64		1.99	0.29		0.32	0.56	1.65	1.24	0.63	0.63
Avail Cap(c_a), veh/h	350	1604		357	1568		188	1172	669	279	808	830
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	38.3	0.0	53.8	21.5	0.0	39.5	33.1	34.2	55.2	25.0	25.0
Incr Delay (d2), s/veh	1.3	2.0	0.0	457.1	0.1	0.0	4.5	2.0	298.5	134.2	3.7	3.6
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	1.6	7.9	0.0	28.0	4.1	0.0	1.8	8.1	74.2	9.4	11.6	11.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	40.4	0.0	510.9	21.6	0.0	44.1	35.1	332.6	189.3	28.8	28.7
LnGrp LOS	D	D		F	C		D	D	F	F	C	C
Approach Vol, veh/h		965			1169			1824			1380	
Approach Delay, s/veh		40.0			319.6			215.3			69.0	
Approach LOS		D			F			F			E	

Timer - Assigned Phs	1	2	3	4		6		8
Phs Duration (G+Y+Rc), s	20.0	39.2	15.0	45.8		59.2		60.8
Change Period (Y+Rc), s	7.6	* 6.3	* 5.3	6.2		* 6.3		6.2
Max Green Setting (Gmax), s	12.4	* 38	* 9.7	34.8		* 38		49.8
Max Q Clear Time (g_c+I1), s	14.4	20.6	11.7	41.6		11.9		28.3
Green Ext Time (p_c), s	0.0	11.4	0.0	0.0		3.3		9.2

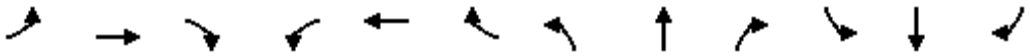
Intersection Summary	
HCM 6th Ctrl Delay	168.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

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

EXISTING PLUS PROJECT – DRIVEWAY ANALYSIS
PROJECT ALTERNATIVE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1094	160	75	1384	0	22	1	12	0	7	0
Future Volume (vph)	0	1094	160	75	1384	0	22	1	12	0	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6			6.0			6.0	
Lane Util. Factor		0.91	1.00	1.00	0.91			1.00			1.00	
Frt		1.00	0.85	1.00	1.00			0.95			1.00	
Flt Protected		1.00	1.00	0.95	1.00			0.97			1.00	
Satd. Flow (prot)		4916	1531	1711	4916			1665			1801	
Flt Permitted		1.00	1.00	0.19	1.00			0.97			1.00	
Satd. Flow (perm)		4916	1531	350	4916			1665			1801	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1189	174	82	1504	0	24	1	13	0	8	0
RTOR Reduction (vph)	0	0	39	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	1189	135	82	1504	0	0	26	0	0	8	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA			NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6		6						
Actuated Green, G (s)		82.7	82.7	95.3	95.3			6.1			2.0	
Effective Green, g (s)		82.7	82.7	95.3	95.3			6.1			2.0	
Actuated g/C Ratio		0.69	0.69	0.79	0.79			0.05			0.02	
Clearance Time (s)		4.6	4.6	4.6	4.6			6.0			6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		3387	1055	368	3904			84			30	
v/s Ratio Prot		0.24		0.01	c0.31			c0.02			c0.00	
v/s Ratio Perm			0.09	0.16								
v/c Ratio		0.35	0.13	0.22	0.39			0.31			0.27	
Uniform Delay, d1		7.6	6.4	3.4	3.7			54.9			58.3	
Progression Factor		0.21	0.03	0.82	1.25			1.00			1.00	
Incremental Delay, d2		0.2	0.2	0.3	0.3			2.1			4.7	
Delay (s)		1.9	0.4	3.1	4.8			57.0			63.0	
Level of Service		A	A	A	A			E			E	
Approach Delay (s)		1.7			4.8			57.0			63.0	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

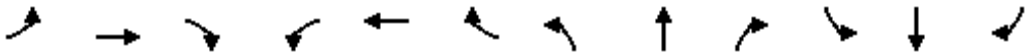
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	806	110	0	593
Future Vol, veh/h	0	16	806	110	0	593
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	876	120	0	645

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	498	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	518	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	518	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	518	-
HCM Lane V/C Ratio	-	-	0.034	-
HCM Control Delay (s)	-	-	12.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1576	29	14	1234	0	151	7	82	0	1	0
Future Volume (vph)	0	1576	29	14	1234	0	151	7	82	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6			6.0			6.0	
Lane Util. Factor		0.91	1.00	1.00	0.91			1.00			1.00	
Frt		1.00	0.85	1.00	1.00			0.95			1.00	
Flt Protected		1.00	1.00	0.95	1.00			0.97			1.00	
Satd. Flow (prot)		4916	1531	1711	4916			1665			1801	
Flt Permitted		1.00	1.00	0.08	1.00			0.97			1.00	
Satd. Flow (perm)		4916	1531	149	4916			1665			1801	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1713	32	15	1341	0	164	8	89	0	1	0
RTOR Reduction (vph)	0	0	13	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	1713	19	15	1341	0	0	243	0	0	1	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA			NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6		6						
Actuated Green, G (s)		70.0	70.0	78.6	78.6			22.8			2.0	
Effective Green, g (s)		70.0	70.0	78.6	78.6			22.8			2.0	
Actuated g/C Ratio		0.58	0.58	0.65	0.65			0.19			0.02	
Clearance Time (s)		4.6	4.6	4.6	4.6			6.0			6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		2867	893	149	3219			316			30	
v/s Ratio Prot		c0.35		0.00	c0.27			c0.15			c0.00	
v/s Ratio Perm			0.01	0.06								
v/c Ratio		0.60	0.02	0.10	0.42			0.77			0.03	
Uniform Delay, d1		16.0	10.5	10.4	9.8			46.1			58.0	
Progression Factor		0.34	1.00	0.77	0.94			1.00			1.00	
Incremental Delay, d2		0.3	0.0	0.3	0.4			10.8			0.5	
Delay (s)		5.7	10.6	8.3	9.6			56.9			58.5	
Level of Service		A	B	A	A			E			E	
Approach Delay (s)		5.8			9.6			56.9			58.5	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

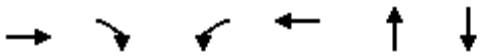
Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	108	462	20	0	746
Future Vol, veh/h	0	108	462	20	0	746
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	117	502	22	0	811

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	262	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	737	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	737	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

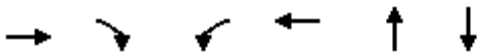
Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	737	-
HCM Lane V/C Ratio	-	-	0.159	-
HCM Control Delay (s)	-	-	10.8	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.6	-



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1189	174	82	1504	38	8
v/c Ratio	0.32	0.14	0.20	0.35	0.25	0.05
Control Delay	1.7	0.3	3.5	4.2	42.0	51.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	1.7	0.3	3.5	4.2	42.0	51.7
Queue Length 50th (ft)	33	0	9	80	18	6
Queue Length 95th (ft)	19	0	40	373	54	22
Internal Link Dist (ft)	489			484	284	718
Turn Bay Length (ft)		85	100			
Base Capacity (vph)	3759	1200	411	4276	481	150
Starvation Cap Reductn	0	0	0	1029	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.14	0.20	0.46	0.08	0.05

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1713	32	15	1341	261	1
v/c Ratio	0.54	0.03	0.06	0.39	0.78	0.01
Control Delay	5.6	0.3	7.8	9.1	58.0	51.0
Queue Delay	0.2	0.0	0.0	0.0	0.5	0.0
Total Delay	5.8	0.3	7.8	9.1	58.6	51.0
Queue Length 50th (ft)	16	0	2	175	179	1
Queue Length 95th (ft)	m475	m0	m17	360	254	7
Internal Link Dist (ft)	489			484	284	718
Turn Bay Length (ft)		85	100			
Base Capacity (vph)	3178	1033	233	3418	487	150
Starvation Cap Reductn	524	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	50	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.03	0.06	0.39	0.60	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

FUTURE PLUS PROJECT – DRIVEWAY ANALYSIS
PROJECT ALTERNATIVE

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↱		↑↑↑		↱
Traffic Vol, veh/h	1153	174	0	1536	0	35
Future Vol, veh/h	1153	174	0	1536	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	85	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1253	189	0	1670	0	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	627
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	365
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	365
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	365	-	-	-
HCM Lane V/C Ratio	0.104	-	-	-
HCM Control Delay (s)	16	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	894	110	0	709
Future Vol, veh/h	0	16	894	110	0	709
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	972	120	0	771

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	546	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	482	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	482	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	482	-
HCM Lane V/C Ratio	-	-	0.036	-
HCM Control Delay (s)	-	-	12.7	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	9.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↱		↑↑↑		↱
Traffic Vol, veh/h	1699	32	0	1429	0	240
Future Vol, veh/h	1699	32	0	1429	0	240
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	85	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1847	35	0	1553	0	261

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	924
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	-	-	0	-	0	~ 233
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	~ 233
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	139.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	233	-	-	-
HCM Lane V/C Ratio	1.12	-	-	-
HCM Control Delay (s)	139.6	-	-	-
HCM Lane LOS	F	-	-	-
HCM 95th %tile Q(veh)	11.8	-	-	-

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

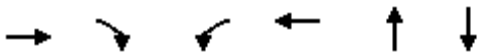
Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	108	669	20	0	767
Future Vol, veh/h	0	108	669	20	0	767
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	117	727	22	0	834

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	375	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	623	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	623	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	0
HCM LOS	B		

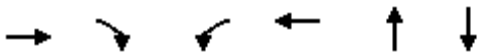
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	623	-
HCM Lane V/C Ratio	-	-	0.188	-
HCM Control Delay (s)	-	-	12.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.7	-



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1253	174	82	1637	38	8
v/c Ratio	0.33	0.15	0.21	0.38	0.25	0.05
Control Delay	1.4	0.2	4.3	5.4	42.0	51.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	1.4	0.2	4.3	5.5	42.0	51.7
Queue Length 50th (ft)	31	0	9	90	18	6
Queue Length 95th (ft)	18	m0	48	450	54	22
Internal Link Dist (ft)	489			484	284	718
Turn Bay Length (ft)		85	100			
Base Capacity (vph)	3758	1199	392	4276	481	150
Starvation Cap Reductn	0	0	0	988	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.15	0.21	0.50	0.08	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

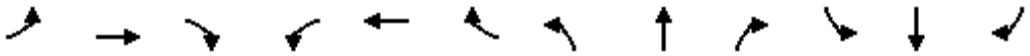


Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1847	32	15	1433	261	1
v/c Ratio	0.58	0.03	0.07	0.42	0.78	0.01
Control Delay	6.5	0.3	7.9	10.8	58.0	51.0
Queue Delay	0.3	0.0	0.0	0.1	4.7	0.0
Total Delay	6.8	0.3	7.9	10.9	62.7	51.0
Queue Length 50th (ft)	30	0	4	216	179	1
Queue Length 95th (ft)	m485	m0	m16	392	254	7
Internal Link Dist (ft)	489			484	284	718
Turn Bay Length (ft)		85	100			
Base Capacity (vph)	3178	1033	216	3418	487	150
Starvation Cap Reductn	654	0	0	822	0	0
Spillback Cap Reductn	0	0	0	0	158	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.03	0.07	0.55	0.79	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HORIZON YEAR PLUS PROJECT – DRIVEWAY ANALYSIS
PROJECT ALTERNATIVE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1238	160	75	1615	0	22	1	12	0	7	0
Future Volume (vph)	0	1238	160	75	1615	0	22	1	12	0	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6			6.0			6.0	
Lane Util. Factor		0.91	1.00	1.00	0.91			1.00			1.00	
Frt		1.00	0.85	1.00	1.00			0.95			1.00	
Flt Protected		1.00	1.00	0.95	1.00			0.97			1.00	
Satd. Flow (prot)		4916	1531	1711	4916			1665			1801	
Flt Permitted		1.00	1.00	0.16	1.00			0.97			1.00	
Satd. Flow (perm)		4916	1531	288	4916			1665			1801	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1346	174	82	1755	0	24	1	13	0	8	0
RTOR Reduction (vph)	0	0	39	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	1346	135	82	1755	0	0	26	0	0	8	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA			NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6		6						
Actuated Green, G (s)		82.5	82.5	95.3	95.3			6.1			2.0	
Effective Green, g (s)		82.5	82.5	95.3	95.3			6.1			2.0	
Actuated g/C Ratio		0.69	0.69	0.79	0.79			0.05			0.02	
Clearance Time (s)		4.6	4.6	4.6	4.6			6.0			6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		3379	1052	325	3904			84			30	
v/s Ratio Prot		0.27		0.02	c0.36			c0.02			c0.00	
v/s Ratio Perm			0.09	0.18								
v/c Ratio		0.40	0.13	0.25	0.45			0.31			0.27	
Uniform Delay, d1		8.1	6.4	3.8	4.0			54.9			58.3	
Progression Factor		0.11	0.01	1.07	1.64			1.00			1.00	
Incremental Delay, d2		0.3	0.2	0.4	0.3			2.1			4.7	
Delay (s)		1.1	0.2	4.4	6.8			57.0			63.0	
Level of Service		A	A	A	A			E			E	
Approach Delay (s)		1.0			6.7			57.0			63.0	
Approach LOS		A			A			E			E	

Intersection Summary			
HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

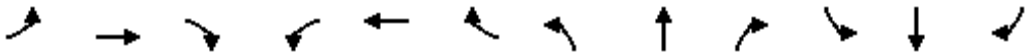
Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	16	960	110	0	762
Future Vol, veh/h	0	16	960	110	0	762
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	1043	120	0	828

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	582	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	456	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	456	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	456	-
HCM Lane V/C Ratio	-	-	0.038	-
HCM Control Delay (s)	-	-	13.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1819	29	14	1415	0	151	7	82	0	1	0
Future Volume (vph)	0	1819	29	14	1415	0	151	7	82	0	1	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.6	4.6	4.6	4.6			6.0			6.0	
Lane Util. Factor		0.91	1.00	1.00	0.91			1.00			1.00	
Frt		1.00	0.85	1.00	1.00			0.95			1.00	
Flt Protected		1.00	1.00	0.95	1.00			0.97			1.00	
Satd. Flow (prot)		4916	1531	1711	4916			1665			1801	
Flt Permitted		1.00	1.00	0.05	1.00			0.97			1.00	
Satd. Flow (perm)		4916	1531	97	4916			1665			1801	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1977	32	15	1538	0	164	8	89	0	1	0
RTOR Reduction (vph)	0	0	13	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	1977	19	15	1538	0	0	243	0	0	1	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA			NA	
Protected Phases	5	2		1	6		3	3		4	4	
Permitted Phases	2		2	6		6						
Actuated Green, G (s)		70.0	70.0	78.6	78.6			22.8			2.0	
Effective Green, g (s)		70.0	70.0	78.6	78.6			22.8			2.0	
Actuated g/C Ratio		0.58	0.58	0.65	0.65			0.19			0.02	
Clearance Time (s)		4.6	4.6	4.6	4.6			6.0			6.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		2867	893	117	3219			316			30	
v/s Ratio Prot		c0.40		0.00	c0.31			c0.15			c0.00	
v/s Ratio Perm			0.01	0.08								
v/c Ratio		0.69	0.02	0.13	0.48			0.77			0.03	
Uniform Delay, d1		17.4	10.5	12.4	10.4			46.1			58.0	
Progression Factor		0.39	1.00	0.71	1.10			1.00			1.00	
Incremental Delay, d2		0.1	0.0	0.4	0.5			10.8			0.5	
Delay (s)		6.9	10.5	9.3	11.9			56.9			58.5	
Level of Service		A	B	A	B			E			E	
Approach Delay (s)		7.0			11.8			56.9			58.5	
Approach LOS		A			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.2
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

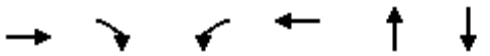
Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	108	706	20	0	871
Future Vol, veh/h	0	108	706	20	0	871
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	117	767	22	0	947

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	395	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	604	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	604	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0
HCM LOS	B		

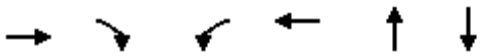
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	604	-
HCM Lane V/C Ratio	-	-	0.194	-
HCM Control Delay (s)	-	-	12.4	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.7	-



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1346	174	82	1755	38	8
v/c Ratio	0.36	0.15	0.22	0.41	0.25	0.05
Control Delay	1.0	0.2	4.5	5.9	42.0	51.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	1.0	0.2	4.5	6.0	42.0	51.7
Queue Length 50th (ft)	13	0	9	101	18	6
Queue Length 95th (ft)	19	m0	45	499	54	22
Internal Link Dist (ft)	489			484	284	718
Turn Bay Length (ft)		85	100			
Base Capacity (vph)	3750	1197	367	4276	481	150
Starvation Cap Reductn	0	0	0	913	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.15	0.22	0.52	0.08	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1977	32	15	1538	261	1
v/c Ratio	0.62	0.03	0.07	0.45	0.78	0.01
Control Delay	7.7	0.3	7.4	11.2	58.0	51.0
Queue Delay	0.5	0.0	0.0	0.2	4.7	0.0
Total Delay	8.2	0.3	7.4	11.4	62.7	51.0
Queue Length 50th (ft)	68	0	3	240	179	1
Queue Length 95th (ft)	m489	m0	m14	432	254	7
Internal Link Dist (ft)	489			484	284	718
Turn Bay Length (ft)		85	100			
Base Capacity (vph)	3178	1033	202	3418	487	150
Starvation Cap Reductn	651	0	0	767	0	0
Spillback Cap Reductn	36	0	0	0	158	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.03	0.07	0.58	0.79	0.01

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.